

Wind Cave National Park

National Park Service
U.S. Department of the Interior

Wind Cave National Park
South Dakota



Environmental Assessment

Boundary Expansion Study

June 2002



ENVIRONMENTAL ASSESSMENT

Boundary Expansion Study

Prepared For:
National Park Service



Prepared By:
engineering-environmental Management, Inc.



Wind Cave National Park

South Dakota

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWD	Chronic Wasting Disease
DO	Director's Order
DOD	United States Department of Defense
DOI	United States Department of the Interior
e ² M	engineering-environmental Management, Inc.
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GMP	General Management Plan
NEPA	National Environmental Policy Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Property
PCB	Polychlorinated Biphenyl
PILT	Payment in Lieu of Taxes
RMEF	Rocky Mountain Elk Foundation
SDGF&P	South Dakota Game, Fish and Parks Department
SDNHP	South Dakota Natural Heritage Program
TNC	The Nature Conservancy
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

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INTRODUCTION

During the year 2000, Wind Cave National Park managers were contacted by an adjacent landowner desiring to sell a 5,555-acre ranch. The former owner of the ranch also desired that a portion of the property be added to the park some 15 years ago, but that request was never fulfilled. An additional 1,000 acres adjacent to the park has become available for a possible addition at the same time as the ranch. Together these 6,555 acres in six tracts are referred to as “the study area” for the purposes of this study/environmental assessment.

The landscape of rolling hills and prairie in and around Wind Cave National Park captures the eye and imagination of visitors. The blend of mixed grass prairie, pine forest, and woody ravines and canyons provides an environment rich in plants and animals, including the bison (*Bison bison*)—one of the best recognized symbols of America's natural and cultural heritage. These resources were critical to the 1912 Congressional decision to expand the park's boundary and purpose. Bison continue to thrive in and around the park and have become one of the main visitor attractions. The boundary lands identified for possible addition to the park would increase park rangeland, protect scenic viewsheds, and provide opportunities to improve wildlife management and expand backcountry trails and programs.

Sale to and development of the study lands by a private developer could impact the scenic resources of the park, reduce habitat for area wildlife, and place other special natural and cultural resources at risk. The Trust for Public Land, a national nonprofit organization that conserves land for parks, natural areas, and open space, is interested in helping the National Park Service (NPS) take advantage of the opportunity to acquire these lands.

LEGISLATIVE HISTORY AND PARK MISSION

Legislative History

Wind Cave National Park is located in the Black Hills of southwestern South Dakota, in Custer County. The park was established with the act of January 9, 1903 (32 Stat. 765-766, 16 USC 141-146), to protect Wind Cave from commercial exploitation. Subsequent legislation, summarized below, changed the size and purpose of the park to include surface resources.

The act of August 10, 1912, provided for the establishment of Wind Cave National Game Preserve on the land included within the boundaries of Wind Cave National Park. This action established “a permanent national range for a herd of buffalo to be presented to the United States by the American Bison Society, and for such other native American game animals as may be placed therein.”

The organic act of August 25, 1916 (16 USC 1), created the National Park Service to “conserve the scenery and the national and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

INTRODUCTION

Section 601 of Public Law 148, dated June 15, 1935 (49 Stat. 383, USC 141b), stated that “effective July 1, 1935, the Wind Cave National Game Preserve” was to be abolished, all property transferred to and made part of the Wind Cave National Park, which would be subject to all applicable laws and regulations for the purposes expressed in the act of August 10, 1912, establishing the game preserve.

Public Law 708 of August 9, 1946 (60 Stat. 970, 16 USC 141a), expanded the park boundary to increase the acreage from 11,718 acres to 28,059 acres, which would provide enough land to maintain viable populations of big game animals, especially pronghorn (*Antilocapra americana*).

Public Law 95-625 (92 Stat. 3475), November 10, 1978, added about 230 acres to the southern end of the park. This allowed relocation of power lines to a less visible location.

Park Purpose, Significance, and Mission

The purpose of Wind Cave National Park is to:

- Preserve and protect park surface and subsurface resources, and
- Provide for public use, education, and enjoyment in ways that leave the resources unimpaired for future generations.

The significance of Wind Cave National Park is that:

- Wind Cave is one of the world’s longest, oldest, and most three-dimensionally complex cave systems and contains the world’s largest concentration of boxwork
- The park provides a rare opportunity to observe, study, and interpret the entire hydrologic cycle from atmosphere to aquifer
- The park preserves one of the few remaining diverse, mixed grass prairie ecosystems
- Wind Cave is the site of one of the early efforts to reestablish the nearly extinct bison and continues to perpetuate descendents from that herd

The mission statement for Wind Cave National Park states:

- Wind Cave National Park is dedicated to preserving and protecting an internationally significant cave, a mixed grass prairie ecosystem, and bison and other native wildlife for the enjoyment, education, and inspiration of this and future generations.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The National Park Service is considering expanding the boundary of Wind Cave National Park in Custer County, South Dakota. This action is needed because the owners of properties

adjacent to the park have expressed an interest in selling their lands. Acquisition of the properties by the National Park Service may be necessary or desirable to carry out the purposes of Wind Cave National Park.

The park is undertaking this boundary study/environmental assessment at this time because landowners adjacent to the park have recently expressed an interest in selling. If the lands were sold and developed, the scenic resources of the park and habitat for area wildlife could be impacted, and other special natural and cultural resources related to the park could be placed at risk.

An environmental assessment (EA) analyzes the proposed action and alternatives and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.9), and the NPS Director's Order (DO)–12 (*Conservation Planning, Environmental Impact Analysis, and Decision-making*).

SCOPE OF THIS DOCUMENT

This boundary adjustment study investigates the suitability and feasibility of adding several specific land tracts to Wind Cave National Park, discusses potential impacts of adding or not adding these areas to the park, and considers other possible management options for the identified lands.

This is not a comprehensive boundary study, which would identify and evaluate *all* lands adjacent to the park to determine whether they are suitable and feasible for addition to the park. Funding to complete an amendment to the 1994 General Management Plan (GMP) has been requested, and the request includes a comprehensive boundary study to identify the nature, size, and location of lands that are suitable and feasible to add to the park. (The 1994 Wind Cave National Park GMP provided limited information regarding management of adjacent lands, and it did not include a comprehensive boundary study.)

If the park boundary were expanded, management of those lands would be addressed in a new GMP or a GMP amendment. Details of wildlife management, fire management, cultural resource management, as well as other management needs, would be provided in future implementation plans.

APPLICABLE REGULATORY REQUIREMENTS AND AGENCY COORDINATION

Wind Cave National Park and the National Park Service are responsible for compliance with all environmental regulations associated with implementing the preferred alternative. The federal, state, and NPS environmental regulations/guidance documents applicable to this planning process are listed in **Table 1**.

TABLE 1. ENVIRONMENTAL REQUIREMENTS—LAW S, REGULATIONS, AND OTHER GUIDANCE

Regulatory Driver	Oversight Agency	Environmental Requirements
Federal Public Laws and Executive Orders		
<i>Farmland Protection Policy Act (FPPA) (PL 97-98 December 1981)</i>	United States Department of Agriculture (USDA)	Minimizes the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural resources.
<i>National Park Service Organic Act of 1916 (PL 64-235)</i>	United States Department of the Interior (DOI); NPS	Mandates the National Park Service to “conserve the scenery and the natural and historic objects and the wildlife [in parks, monuments, and reservations] and to provide for the enjoyment of the same in such manner as will leave them unimpaired for the enjoyment of future generations.”
<i>Executive Order (EO) 11988, Floodplain Management</i>	NPS	Provides direction regarding actions of federal agencies in floodplains, and requires permits from state and federal review agencies for any construction within a 100-year floodplain.
<i>EO 11990, Protection of Wetlands</i>	NPS	Requires federal agencies to avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative, and all practicable measures to minimize harm to wetlands has been implemented.
<i>EO 11514, Protection and Enhancement of Environmental Quality</i>	The Council on Environmental Quality (CEQ)	Federal agencies shall initiate measures needed to direct their policies, plans, and programs to meet national environmental goals. They shall monitor, evaluate, and control agency activities to protect and enhance the quality of the environment.
<i>EO 11593, Protection and Enhancement of the Cultural Environment</i>	DOI	All federal agencies are required to locate, identify, and record all cultural and natural resources. Cultural resources include sites of archaeological, historical, or architectural significance. Natural resources include the presence of endangered species, critical habitat, and areas of special biological significance.
<i>EO 11987, Exotic Organisms</i>	USDA; DOI	Agencies shall restrict the introduction of exotic species into the natural ecosystems on lands and waters which they administer.
<i>EO 12088, Federal Compliance With Pollution Control Standards.</i>	United States Environmental Protection Agency (EPA)	This EO delegates responsibility to the head of each executive agency for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution. This order gives the EPA authority to conduct reviews and inspections to monitor federal facility compliance with pollution control standards.
<i>EO 12898, Environmental Justice</i>	EPA	This EO requires certain federal agencies, including the Department of Defense (DoD), to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.
<i>EO 13112, Exotic and Invasive Species</i>	Invasive Species Council; DOI	To prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.
<i>EO 13045, Protection of Children from Environmental Health and Safety Risks</i>	Task Force on Environmental Health Risks and Safety Risks to Children	This EO makes it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. It also directs agencies to ensure that policies, programs, activities, and standards address such risks if identified.

Regulatory Driver	Oversight Agency	Environmental Requirements
United States Codes		
<i>National Environmental Policy Act of 1969 (NEPA), as amended; P.L. 91-190, 42 USC 4321 et seq.</i>	EPA	Requires federal agencies to utilize a systematic approach when assessing environmental impacts of government activities. Sometimes referred to as the mother of environmental impact statement. NEPA proposes an interdisciplinary approach in a decision-making process designed to identify unacceptable or unnecessary impacts to the environment.
<i>Clean Air Act, 42 USC 7401-7671q, July 14, 1955, as amended</i>	EPA	This Act, as amended, is known as the Clean Air Act of 1970. The amendments made in 1970 established the core of the clean air program. The primary objective is to establish federal standards for air pollutants. It is designed to improve air quality in areas of the country which do not meet federal standards and to prevent significant deterioration in areas where air quality exceeds those standards.
<i>Federal Water Pollution Control Act (Clean Water Act), 33 USC 1251-1387</i>	USACE	The Clean Water Act is a comprehensive statute aimed at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. Primary authority for the implementation and enforcement rests with the EPA.
<i>Migratory Bird Treaty Act 16 USC 703-712</i>	United States Fish and Wildlife Service (USFWS)	The Migratory Bird Treaty Act implements various treaties and for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful.
<i>Endangered Species Act of 1973, as amended; P.L. 93-205, 16 USC 1531 et seq.</i>	USFWS	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Under this law, no federal action is allowed to jeopardize the continued existence of an endangered or threatened species. The Endangered Species Act also requires consultation with the USFWS and the National Marine Fisheries Service and the preparation of a biological assessment when such species are present in an area that is affected by government activities.
<i>National Historic Preservation Act, 16 USC 470 et seq.</i>	Advisory Council on Historic Preservation (ACHP); NPS	Requires federal agencies to take account of the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through listing on the NRHP), and protection of historical and cultural properties of significance.
<i>Federal Noxious Weed Act of 1974, 7 USC 2801-2814</i>	USDA; DOI	The Act provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health.
National Park Service		
<i>Director's Order #12 and Handbook</i>	DOI; NPS	Outlines practices for meeting the legal requirements of NEPA. Does not conflict with CEQ regulations; however the NPS has added some requirements that go beyond those imposed by CEQ to help facilitate the requirements of the Organic Act and other laws and policies that guide NPS actions.

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ALTERNATIVES FOR BOUNDARY EXPANSION

ALTERNATIVE A: NO ACTION

Under the “No-Action” alternative, existing management of the park would continue and the boundary would not be expanded. Wind Cave National Park would not be protected from the threat of surrounding land uses that could jeopardize resources and scenic vistas. Significant natural and cultural resources that are related to the park purpose are located outside the present boundary but would not be protected or interpreted.

ALTERNATIVE B: THE PREFERRED ALTERNATIVE

This alternative would expand the boundary of Wind Cave National Park by adding all study area parcels (approximately 6,555 acres in six tracts representing four landowners.) This is the preferred alternative of the National Park Service. The parcels are located just south and southeast of the park (see **Figure 1**).

The largest component of the preferred alternative is 5,555 acres of private land. Made up of the Milliron Ranch and the Casey Ranch Limited Partnerships tracts, these properties have one owner and are referred to herein as “the Casey property.” The land shares a nine-mile common boundary with Wind Cave National Park and is currently managed for cattle and a commercial bison herd. It includes the “keyhole” lands, which jut into the heart of the national park from the south.

The second private land component, the Pearson tract, is 40 acres in size. It is located on high ground (Gobbler Knob) that overlooks the park and adjoins it at the southern end. The owner of this tract has expressed interest in selling the property.

The third component consists of 880 acres of South Dakota public school lands at the extreme east end of the park. These lands, which are managed by the state to provide income for public schools, are available for exchange and/or sale.

The fourth component, two separate parcels managed by the Bureau of Land Management (BLM), totals 80 acres. These parcels are within the Casey Property and are leased to the family for grazing.

Private lands would be acquired from the owners only if they are willing sellers. The Trust for Public Lands, a national nonprofit organization that conserves land for parks, natural areas, and open space, has indicated an interest in assisting the National Park Service in acquiring the private lands. The public school lands would be acquired by donation or exchange, or purchased with the assistance of a third party. An administrative transfer would be necessary to transfer the BLM lands to the National Park Service.

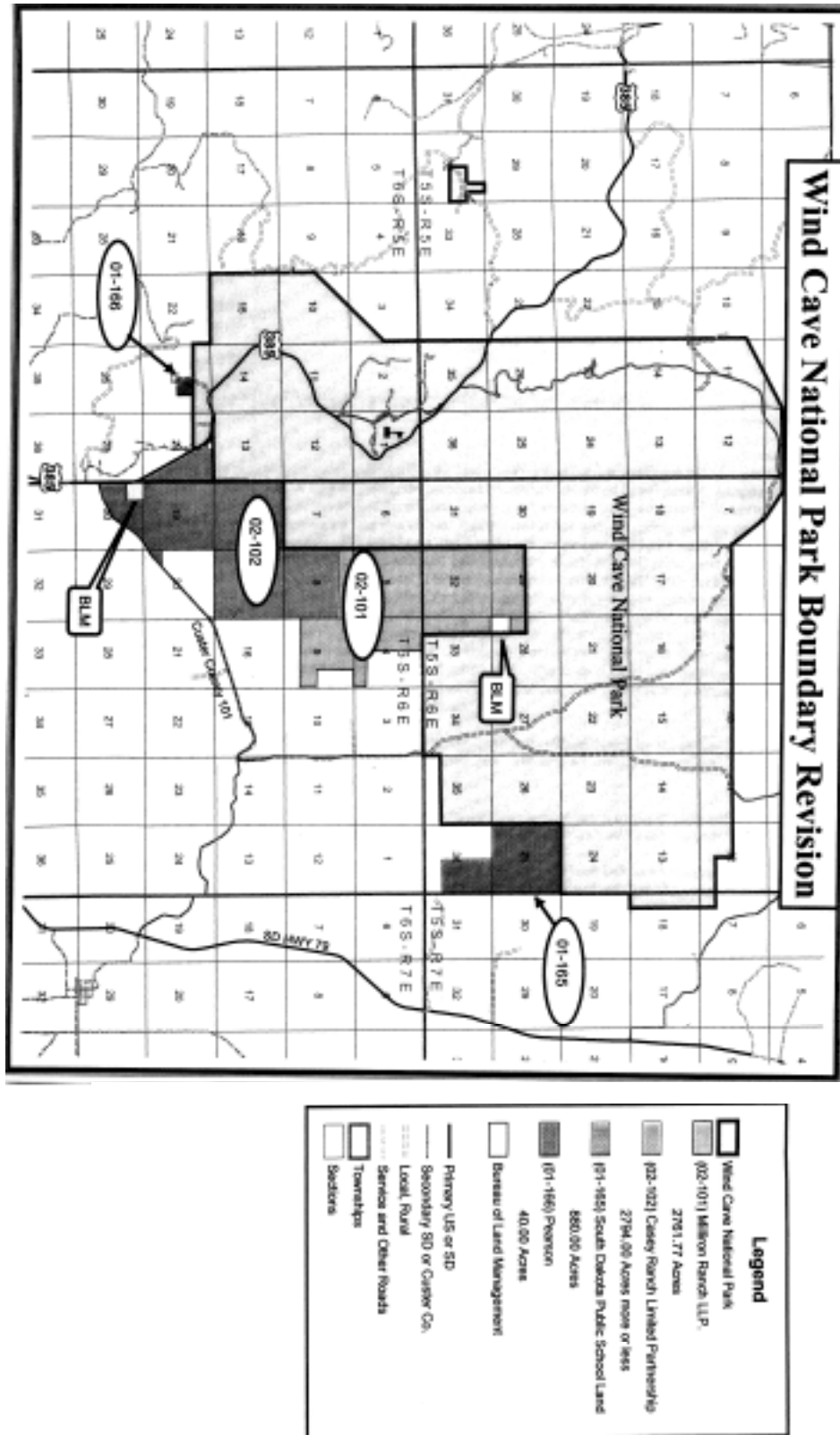


FIGURE 1. LAND OWNERSHIP OF THE PROPERTIES IDENTIFIED FOR INCLUSION IN THE WIND CAVE NATIONAL PARK BOUNDARY EXPANSION

ALTERNATIVE C

This alternative would expand the boundary of Wind Cave National Park by approximately 5,635 acres by adding the Casey property (5,555 acres) and the BLM parcels (80 acres). The 40-acre Pearson tract and the 880 acres of public school lands would not be included in the boundary expansion.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

According to the CEQ regulations implementing NEPA, and the National Park Service NEPA Guidelines (DO-12), an environmentally preferred alternative must be identified in an EA. In order for an alternative to be environmentally preferred, it must meet the criteria established in section 101(b) of NEPA and subsequently adopted by the National Park Service. An alternative must meet the following criteria to be considered an environmentally preferred alternative:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The environmentally preferred alternative in this EA is also the preferred alternative of the National Park Service (alternative B). Boundary expansion to include the entire study area meets all of the criteria listed above. This alternative will especially allow the National Park Service to attain the widest range of beneficial uses of the environment, without degradation or risk to health and safety, while preserving and providing diverse opportunities to experience important historic, cultural, and natural resources with a variety of individual choice.

Alternative A, the no-action alternative, fails to meet any of the criteria listed above, as none of the study area would be encompassed within the boundaries of Wind Cave National Park. This alternative would not allow the current generation to be trustees of the environment for future generations; could not ensure a safe, healthful, productive, and esthetically/culturally pleasing surrounding; would not allow the National Park Service to attain the widest range of beneficial uses without degradation or risk to health and safety; would not preserve and

provide opportunities to experience diverse historic, cultural, and natural aspects of our heritage with a variety of individual choice; would not balance population and resource use that permits high standards of living and a wide sharing of life's amenities; nor would it enhance the quality of renewable resources or help attain the maximum recycling of depletable resources.

Although alternative C seeks to encompass the Casey property, and could also meet all the criteria listed above, it is not to the extent that alternative B would meet the criteria. Leaving out the public school lands and Pearson tract will not attain the widest range of beneficial uses; would not preserve potentially important cultural and natural resources on these lands; would not achieve the same balance between population and resource use as alternative B; nor would it enhance the quality of renewable resources or attain maximum recycling of depletable resources.

AFFECTED ENVIRONMENT

The “Affected Environment” section describes the existing environment of Wind Cave National Park and the study area. The focus is on key park and study area resources, visitor experiences, socioeconomic characteristics, and park operations that could be affected by the alternatives should they be implemented. These topics were selected based on federal law, regulations, executive orders, NPS expertise, and concerns expressed by other agencies or members of the public during project scoping.

Project scoping consists of two distinct efforts that occur at different stages of the planning process: internal and external scoping. Internal scoping is simply the use of NPS staff (at the support office, regional, park, or National Program Center level) to decide what needs to be analyzed in a NEPA document. It is an interdisciplinary process, and at a minimum it should be used to define issues, alternatives, and data needs of the document (NPS 2001). External or public scoping occurs throughout the NEPA process, involving affected and interested members of the public, as well as federal, state, and local agencies, and Indian tribes. Public scoping seeks to:

- Determine important issues;
- Eliminate issues that are not important or relevant;
- Divide up assignments;
- Identify relationships to other planning efforts or documents;
- Define a time schedule of document preparation and decision-making; and
- “Size the analysis box,” which includes defining purpose and need, agency objectives and constraints, and the range of alternatives (NPS 2001).

The “Affected Environment” section first identifies impact topics the planning team chose to analyze and discuss in this document, the topics the team chose not to discuss, and the rationale for making these decisions. The conditions described establish the baseline for the analysis of effects in the “Environmental Consequences” section.

IMPACT TOPICS CONSIDERED IN THIS ENVIRONMENTAL ASSESSMENT

Scenic Quality
Cave Resources
Biological Resources
 Vegetation
 Wildlife
 Fisheries and Aquatic Habitat
 Threatened and Endangered Species
Ungulate Exposure to Chronic Wasting Disease
Cultural Resources
Socioeconomic Resources
National Park Infrastructure and Operations

Visitor Experience and Understanding

IMPACT TOPICS CONSIDERED BUT NOT ANALYZED IN DETAIL

Ecologically Critical Areas, Wild and Scenic Rivers, Other Unique Natural Areas

No areas within the park have been designated as ecologically critical, and there are no Wild and Scenic River designations within the park. The national park is an important natural area, but the alternatives would protect rather than threaten the qualities and resources that make the park special. Therefore, this was dismissed from the impact topics.

Geology and Soils

Implementing any of the alternatives for boundary expansion at Wind Cave National Park is not anticipated to affect the geology or soils of the park or the study area. Therefore, geology and soils were dismissed as an impact topic.

Air Quality

Regional air quality and visibility would not be affected by the alternatives. Air pollution from sources outside the park would be addressed through Clean Air Act authorities and through cooperative efforts between the National Park Service and other entities. As such, air quality has been dismissed as an impact topic.

Water Resources, Including Wetlands and Floodplains

Executive Order 11990, *Protection of Wetlands*, requires federal agencies to avoid, where possible, impacts on wetlands. There are few wetland areas within Wind Cave National Park and the study area, and they are generally associated with streams. Areas proposed for trails would be carefully evaluated before any ground-disturbing activities would be initiated to ensure that wetland impacts would be avoided. Therefore, wetlands were dismissed from further analysis in this document.

The Floodplain Management Guideline (NPS 1993) directs that environmental analysis for proposed actions and alternatives located in floodplains identify impacts associated with occupation and modification of floodplains. This directive was developed from Executive Order 11988, *Floodplain Management*, which requires federal agencies to avoid construction within the 100-year floodplain unless no other practical alternative exists, and the guidelines for implementing the EO developed by the Water Resources Council. No occupation or modification of floodplains is proposed in any of the alternatives, and therefore, floodplains were dismissed as an impact topic.

No changes in surface or groundwater flows (water quantity) or water quality are expected from implementing any alternative. In addition, water rights have been considered as part of the issues related to water resources. A change in water rights is not expected to occur as a result of this project (see “Mineral, Grazing, and Water Rights” section). Because there would be no foreseeable impacts to wetlands, floodplains, water quantity/quality, or water rights, water resources was dismissed as an impact topic.

Noise (Natural Soundscapes)

Effects of the alternatives on vehicular traffic or other sources of non-natural noise would be negligible. There would be no noise associated with construction as development is not planned for the study area. Therefore noise was dismissed as an impact topic.

Land Use

With the exception of the Pearson tract (undeveloped, unoccupied), all properties in the study area have agricultural land uses. The Casey property, as well as the public school lands, currently support grazing operations. The land use will change from agriculture to conservation in some alternatives; however, this is not expected to result in any foreseeable impacts to the lands. This is because agricultural activities (e.g., grazing) on the public school lands and Casey property have been conducted so as to maintain native vegetation communities and natural processes (e.g., fire), to the greatest extent possible. Therefore, land use was dismissed as an impact topic.

However, the National Park Service must contact the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) to determine if the boundary expansion is subject to the Farmland Protection Policy Act (FPPA) (PL 97-98, December 1981). The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. Farmland, as used in the FPPA, includes “prime” farmland, ‘unique’ farmland, and land of statewide or local importance. USDA, NRCS has national leadership for administering the FPPA (USDA, NRCS 2002).

Prime farmland is found predominantly in the eastern part of South Dakota, and to a limited extent in west-central South Dakota along the Belle Fourche River. USDA, NRCS maps indicate that there is no unique farmland near Wind Cave National Park, and that less than 5% of non-federal areas surrounding the park contain prime farmland (USDA, NRCS 1997). Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crop. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods (USDA, NRCS 2002a).

Hazardous and Toxic Materials/Waste

Limited ground observations by NPS staff have not turned up evidence of hazardous materials in the study area. Hazardous material use and hazardous waste generation are not typically associated with agricultural and/or grazing operations. Therefore, the potential for such materials and waste to exist in the study area is very limited. Very limited pesticide application has occurred on the Casey property to help control noxious weeds (most are hand pulled), and all containers were disposed of properly for recycling. Prior to acquisition, a Phase 1 Hazardous Materials Survey will be done and, if necessary, a Phase 2 survey as well.

There was some concern over power lines on the Casey property, and the presence of polychlorinated biphenyl (PCB)-containing transformers. Based on conversations with the property owner, the power lines are owned by Black Hills Electric. The utility company indicated that they have removed and replaced any PCB-containing transformers previously on this line with PCB-free transformers (Stoll 2002).

As the issues surrounding hazardous and/or toxic materials/waste are negligible, this has been dismissed as an impact topic.

Environmental Justice

None of the activities proposed in the alternatives A, B, and C disproportionately affects children, minority or low-income populations. Therefore, environmental justice was dismissed as an impact topic.

DESCRIPTION OF THE STUDY AREA

Wind Cave National Park, which occupies approximately 28,295 acres of land, and the study area are located ten miles north of the community of Hot Springs, South Dakota, entirely in Custer County. Located on the southern flank of the Black Hills, these lands occur in a transitional zone between the grasslands of the Great Plains and the ponderosa pine forests of the Black Hills and the eastern Rocky Mountains. **Figure 2** depicts the vicinity of Wind Cave National Park, while **Figure 1** illustrates the extent and ownership of land in the study area.

The study area is comprised of lands that would expand the boundary of Wind Cave National Park by approximately 6,555 acres, or 23%, by adding parcels from four different landowners. The parcels are located just south or southeast of the park.

The largest component of the proposal is the 5,555 acres of Casey property. This land shares a nine-mile common boundary with Wind Cave National Park and is currently managed for cattle and a commercial bison herd. Existing structures on the property include equipment storage buildings, an elk and bison sorting facility, as well as the historic Sanson Ranch homestead and associated out-buildings. The Casey property falls within Township 5S, Range 6E, Section 32 and parts of Sections 28, 29, and 33, as well as Township 6S, Range 6E,

Section 5, 8, 17, 18, 19, and parts of Sections 4, 9, 19, 20, and 30. A small portion of the Casey property is also located in Township 6S, Range 5E, Section 24.

The second private land component, the Pearson tract, is 40 acres in size. It is located on high ground (Gobbler Knob) that overlooks the park and abuts the park's southern boundary on one side. The land is unoccupied, undeveloped, and the owner has indicated an interest in selling the property. This parcel falls within Township 6S, Range 5E, Section 23.

The third component consists of approximately 880 acres of South Dakota public school lands at the extreme east end of the park. These lands, which are currently leased to private citizens for livestock grazing, are intended to generate revenue for the state school system. This parcel is available for sale or exchange for property capable of generating revenue. The public school lands fall within Township 5S, Range 6E, Sections 25 and part of Section 36.

The fourth component is comprised of two separate parcels managed by the BLM and totals 80 acres. These parcels are situated within the Casey property, are leased to the Casey family for grazing purposes, and are managed by the Caseys in essentially the same manner as the rest of their property. The Milliron Ranch BLM in-holding falls within Township 5S, Range 6E, Section 28, and the Casey Ranch BLM in-holding falls within Township 6S, Range 6E, Section 30.

Natural and cultural resources of the study area have been evaluated using the National Park Service *History and Natural History Thematic Frameworks*. Collectively, the study area has the following Natural History Thematic Framework:

GROUP I – Landforms of the Present

Theme 1 – Plains, Plateaus, and Mesas

Theme 12 – Caves and Springs

GROUP II – Geologic History

Theme 16 – Mississippian-Permian Periods

GROUP III – Land Ecosystems

Theme 23 – Dry Coniferous Forests

Theme 25 – Grasslands

GROUP IV – Aquatic Ecosystems

Theme 31 – Underground Systems

Theme 33 – Streams

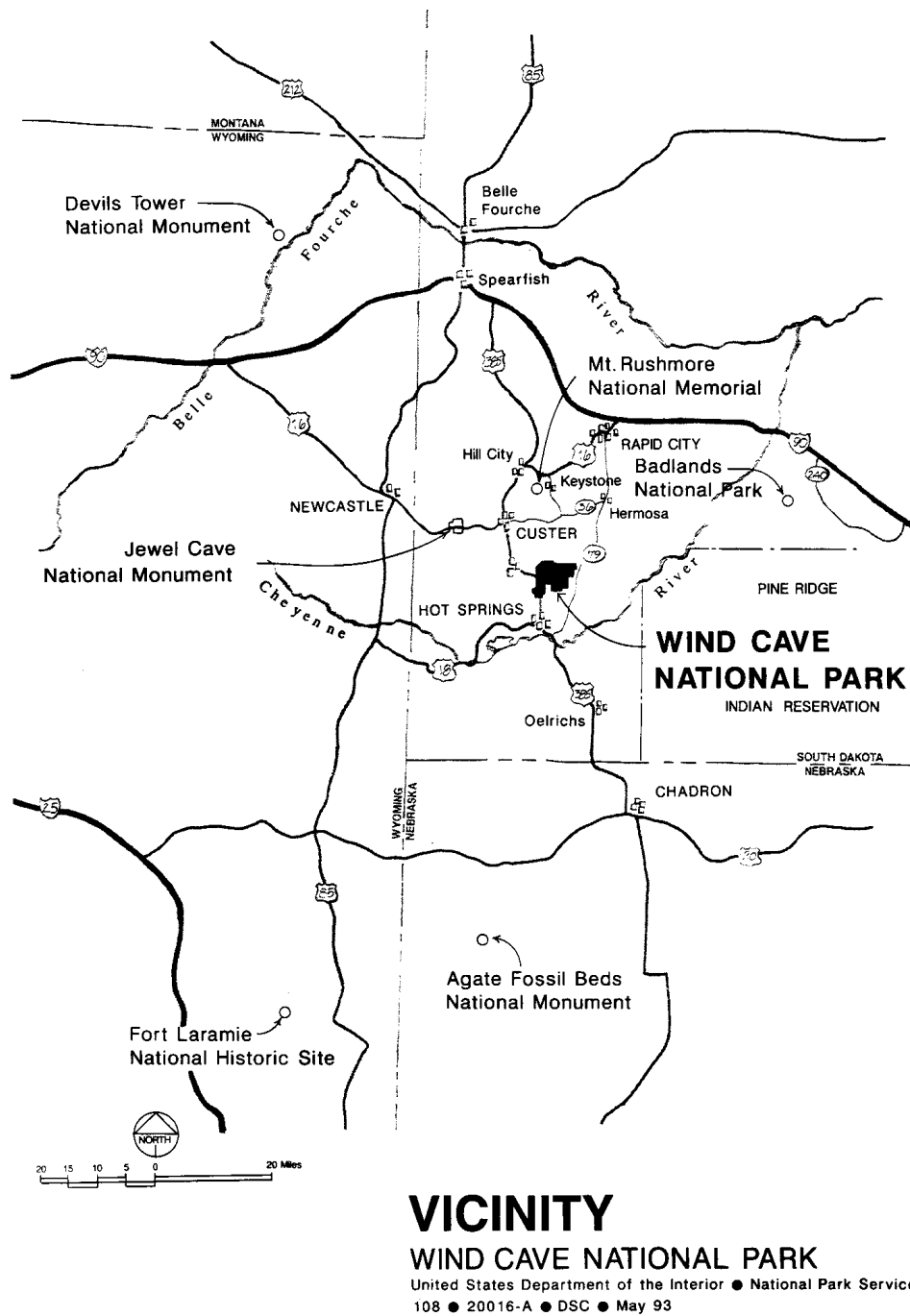


FIGURE 2. VICINITY MAP OF WIND CAVE NATIONAL PARK

Cultural resources in the study area collectively have the following History Thematic Framework:

THEME I – Peopling Places

- Topic 3 – Migration from Outside and Within
- Topic 5 – Ethnic Homelands
- Topic 6 – Encounters, conflicts, and colonization

THEME V – Developing the American Economy

- Topic 1 – Extraction and Production
- Topic 2 – Distribution and Consumption
- Topic 4 – Workers and Work Culture
- Topic 7 – Governmental Policies and Practices

SCENIC QUALITY

In the evaluation of scenic quality, both the visual character and visual quality of a viewshed should be considered. A viewshed comprises the limits of the visual environment associated with the proposed action.

Visibility at Wind Cave National Park is excellent with distant topography visible 40 to 60 miles to the east. The National Park Service has identified several scenic views that are part of the visitor experience and worthy of protecting.

Casey Property (Including BLM In-Holdings). A continuation of the park topography, the southern portion of the Casey property is dominated by plains and rolling hills; the northern portion is higher and more rugged, with canyons and ridges. Views from and of the property are excellent and expansive. Various topographic features are visible from the property, including Buffalo Gap to the south-southeast.

Public School Lands. While not as visible as the Pearson tract, the public school lands are a natural extension of the rugged landscape of northeastern Wind Cave National Park. Driving along NPS 6 in the eastern part of Wind Cave National Park, and from most vantage points within the park, the views of the public school lands are very limited. The ridge that includes the western edge of the public school lands overlooks the “red valley” area of the park, which is well known for its scenic beauty and lack of man-made structures.

From another vantage point, the Boland Ridge Trail, hikers can now look onto the property and see a continuation of hills, valleys, and ravines covered in places by ponderosa pine (*Pinus ponderosa*) and a variety of mixed grass prairie. Hikers can also observe a variety of hardwood tree and shrub species on the state school lands, such as chokecherry (*Prunus virginanus*), aspen (*Populus tremuloides*), birch (*Betula* sp.) and mountain mahogany (*Cercocarpus montanus*).

Pearson Tract. Located on top of Gobbler Knob, this undeveloped piece of property is visible from most viewpoints on the main park road. The property offers an uninterrupted extension of the visual landscape at the southern boundary of the park. It also offers clear unobstructed views of the park from the property.

RESOURCE SIGNIFICANCE

The Casey and Pearson properties are important components of the natural scenic landscape around Wind Cave National Park. They, as well as the public school lands, are a natural extension of the ridge and canyon topography of the park.

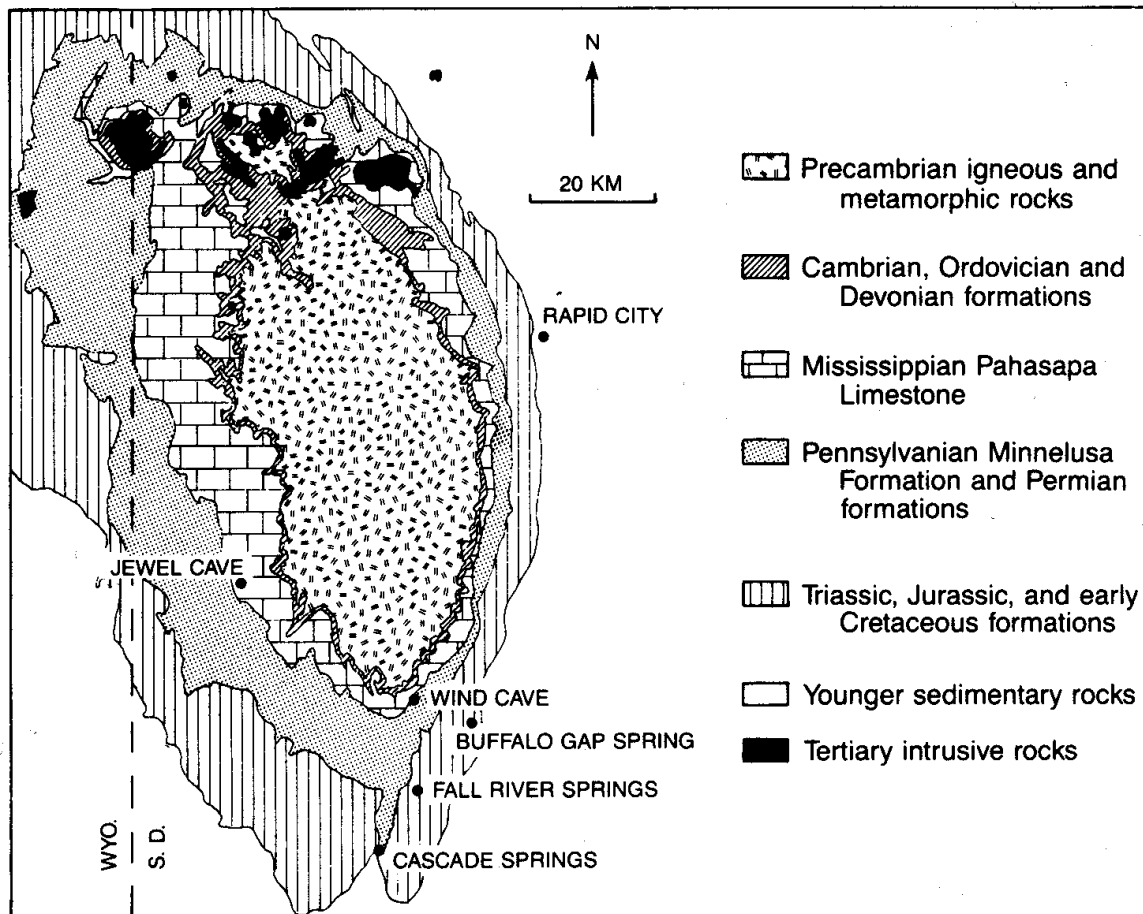
CAVE RESOURCES

The study area lies in the Black Hills of South Dakota. The Black Hills geology can be traced to various uplifting events that resulted in an approximate 125-mile by 60-mile elliptical dome reaching up to 7,242 feet above sea level. Over time, sedimentary rock cover has been weathered by erosion, leaving more resistant crystalline rocks as caps, ridges, pinnacles and outcrops (Cogan et al 1999). As seen from an aerial perspective, the Black Hills consist of concentric rings of progressively younger rocks moving out from central high elevations.

Figure 3 depicts the general geology of the Black Hills region. This concentric pattern can be separated into five major geomorphic regions: 1) the Central Crystalline Area, 2) the Limestone Plateau, 3) Minnelusa Foothills, 4) the Red Valley, and 5) the Cretaceous or “Dakota” Hogback (Cogan et al 1999). Interspersed within these formations are deposits of sediment (alluvium) left by various depositional events. Directly to the east of the park, the Black Hills blend into the rolling prairie lands of the Central Great Plains Region (Cogan et al. 1999).

Casey Property (Including BLM In-Holdings). The oldest geologic formation found on the Casey property, the lower Mississippian age Pahasapa limestone, is also the least extensive formation. The lower Mississippian age Pahasapa limestone is deeply buried and not exposed on the Casey property. This formation consists of a lower dolomite unit and an upper sandstone unit and is approximately 300- to 630-feet thick (SDSMT 1963). Wind Cave is located within this geologic formation.

The Minnelusa formation is the next youngest formation on the Casey property and was deposited during the Pennsylvanian and Permian periods. This formation, which is approximately 350- to 850-feet thick (SDSMT 1963), consists of a lower shale unit, a sandstone and limestone unit, and an upper sandstone unit. Coyote Cave in Wind Cave National Park is located in this formation.



Source: Bakalowicz et. al 1987

FIGURE 3. GENERAL GEOLOGY OF THE BLACK HILLS REGIONS

The last and youngest geologic formation exposed on the Casey property is the Minnekahta formation. This formation was deposited after the Minnelusa formation during the Permian period. The Minnekahta formation consists of a massive, gray laminated limestone 30- to 50-feet thick (SDSMT 1963). The cave on the Casey property is located in this formation and represents the longest known cave in the Minnekahta within the Black Hills. The cave is reported to contain bat guano and may serve as an important roosting site for bats.

Public School Lands. The main geologic feature exposed on the public school lands is the Inyan Kara group. This group was deposited during the lower Cretaceous period. It consists of the Lakota formation, a conglomeritic sandstone interbedded with layers of clay that also has local fine-grained limestones, the Fall River sandstone, and the Fusion Shale, which may not be present in this case. The Lakota formation ranges in thickness from 35 to 700 feet, while the Fall River Sandstone ranges from 10- to 200-feet thick (SDSMT 1963). There are no known caves on the public school lands within this formation. The Newcastle Sandstone and

the Skull Creek Shale may be exposed in the southeast corner of the public school lands as well.

Pearson Tract. This piece of property is located on the top of a ridge called Gobbler Knob. The Minnelusa formation is the most extensive geologic formation of the Pearson tract. The Minnekahta formation may also underlie a very limited area of this property. There are no known caves on the Pearson tract.

RESOURCE SIGNIFICANCE

The cave located on the Casey property is the most significant known geologic/cave resource in the study area. Adding the Casey property to the park allows the National Park Service to protect the longest (approximately 200 feet) known cave in the Minnekahta formation. The only other known cave from this formation has one room with a collapsed roof. The Casey property may also contain other, undiscovered caves, as it contains geologic formations in which caves are known to form.

The exact location of this cave is known to very few people. As such, it is likely that the cave is unspoiled by human disturbance and is an excellent representation of the caves of the Minnekahta formation.

According to an unpublished report, there is bat guano in the cave, indicating that it may be an important bat roosting site. Surveys have never been conducted to confirm the presence of bats, as this cave is located on private property and difficult to find. It is recommended that surveys be conducted in early to mid-summer, when male and female bats are most active, searching for food to raise their broods. Nonetheless, the cave could support species of bats that are monitored by the USFWS and the South Dakota Natural Heritage Program (SDNHP). This includes the Townsend's big-eared bat (*Corynorhinus townsendii*), monitored by the USFWS and the SDNHP, and considered the highest priority for funding, planning, and conservation action by *The Western Bat Species: Regional Priority Matrix* (1998) in all of its range; the fringe-tailed myotis (*Myotis thysanodes*), monitored by the USFWS and SDNHP; the silver-haired bat (*Lasionycteris noctuagans*), monitored by the SDNHP; and the northern myotis (*Myotis septentrionalis*), also SDNHP-monitored (Curtin 2002).

Including this cave within the park boundary provides Wind Cave National Park with the opportunity to preserve another significant cave, consistent with the mission and purpose of the park to "preserve and protect park surface and subsurface resources." The cave may be the focus of scientific research into cave formation in the Minnekahta formation, as well as an important potential bat roosting site in the Black Hills.

The geologic formations of the Pearson tract and public school lands are continuations of the formations found within the park. Including these lands within the boundary of Wind Cave National Park preserves and protects natural extensions of these geologic formations and additional, undiscovered caves.

BIOLOGICAL RESOURCES

This section describes the general biotic environment of the study area, including vegetation, wildlife, fisheries and wildlife habitat, and threatened and endangered species.

Vegetation

The study area has common borders with Wind Cave National Park and is a natural extension of the habitat and vegetation supported in the park.

Casey Property (Including BLM In-Holdings). Vegetation communities on the Casey property are typical of the ponderosa pine (*Pinus ponderosa*)/prairie transition zone of the lower elevations of the Black Hills. (Cogan et al. 1999). The drainages on this property, which include Beaver Creek and a few small, unnamed draws, are dominated by chokecherry (*Prunus virginanus*) shrublands, but also support boxelder (*Acer negundo*)-chokecherry and ponderosa pine/chokecherry forests. An uncommon community type birch (*Betula* sp.)-aspen (*populus tremuloides*) occurs within a drainage on the Casey property (Cogan et al. 1999). This aspen/birch stand is probably less than two acres in size (Wind Cave National Park 2002).

The mountain mahogany (*Cercocarpus montanus*)/sideoats grama (*Bouteloua curtipendula*) association dominates the shrublands on the Casey property. This association is present along steep, dry, south-facing slopes. Mountain mahogany cover on aerial photography ranges from 50% to less than 15%. It is also found on steep, north-facing slopes, where canopy cover ranges from 50% to 100%. Sideoats grama and little bluestem (*Schizachyrium scoparium*) are the dominant grass species occurring in and around this plant community (Cogan et al. 1999).

Three upland ponderosa pine woodland types occur on the Casey property. The ponderosa pine/little bluestem woodland is the dominant type. The semi-open to open canopy of this class supports an understory of grasses and sparse shrubs. Gravelly and sandy soils in these areas typically support little bluestem (Cogan et al. 1999).

The young ponderosa pine, dense cover complex is the second most extensive woodland type on the Casey property. This community includes all areas that were recently reforested by ponderosa pine (roughly <20 years old). Young ponderosa pine usually form large, dense (dog-hair) stands next to older pine classes and/or burned areas. Mountain mahogany often occurs near this community (especially along Wind Cave Canyon) (Cogan et al. 1999).

Small stands of ponderosa pine woodland also occur on the Casey property. Included within this type are ponderosa pine/sun sedge (*Carex inops* ssp. *heliophila*), ponderosa pine/western wheatgrass (*Pascopyrum smithii*), and ponderosa pine/common juniper (*Juniperus communis*) associations. Areas where ponderosa pine encroach onto deep, loamy soils are representative of this class (Cogan et al. 1999).

The grasslands of the Casey property support two dominant associations: the little bluestem-grama grass/threadleaf sedge (*Carex filifolia*) herbaceous vegetation association, and the

western wheatgrass–Kentucky bluegrass (*Poa pratensis*) association. The former typically occurs on sparse to barren gravelly slopes and knolls throughout the property. The grama grass component consists of both sideoats grama and blue grama (*Bouteloua gracilis*) (Cogan et al. 1999).

The western wheatgrass–Kentucky bluegrass association includes the western wheatgrass–green needlegrass (*Nassella viridula*) and Kentucky bluegrass herbaceous vegetation types. This mapping unit is found throughout the Casey property on mesic loamy to clayey soils (Cogan et al. 1999).

Limited amounts of exotic species have been known to occur on the Casey property, including hounds tongue (*Cynoglossum officinale*), Canada thistle (*Cirsium arvense*), and leafy spurge (*Euphorbia esula*) (Casey 2002). However, these species have been nearly eliminated by hand-pulling. During the January 2002 site visit, e²M biologists noted only small, scattered individual Canada thistle plants during the windshield tour of the Casey property.

Public School Lands. The public school lands also support vegetation types indicative of the transition from prairie to ponderosa pine woodlands. The drainages on the lands are dominated by chokecherry shrublands. There are also at least seven small stands of birch/aspen, an uncommon community type in the southern Black Hills and Wind Cave National Park. The ponderosa pine/little bluestem woodlands and the ponderosa pine woodland dominate the upland woodland habitat, while the little bluestem–grama grass/threadleaf sedge herbaceous vegetation association and the western wheatgrass–Kentucky bluegrass association dominate the grasslands (Cogan et al. 1999).

Few exotic, noxious, and/or invasive species occur in the northeastern part of Wind Cave National Park, so few are expected on the public school lands (Curtin 2002).

Pearson Tract. Ponderosa pine woodland is the most common vegetation type on the Pearson tract. This includes the ponderosa pine/little bluestem woodland and the ponderosa pine woodland associations described previously. Included within this type are ponderosa pine/sun sedge, ponderosa pine/western wheatgrass, and ponderosa pine/common juniper associations (Cogan et al. 1999).

The little bluestem–grama grass/threadleaf sedge herbaceous vegetation and the western wheatgrass–Kentucky bluegrass associations are also found on the Pearson tract. These associations are supported primarily on the eastern slope of Gobbler Knob, while the ponderosa pine woodland complexes are found on the top and western slope of the knob (Cogan et al. 1999).

Park staff noted that the Pearson tract, which is dominated by undisturbed ponderosa pine forest that provides a good amount of shade, is unlikely to support exotics (Curtin 2002).

Wildlife

Wildlife habitat is provided by the varied vegetation of the study area. Although no surveys have been conducted in the study area to identify wildlife, many have been conducted within Wind Cave National Park. Based on the habitat similarity between the park and study area, as well as local observations, the following classes of animals are believed to occur in the study area: mammals, including ungulates (hoofed animals), carnivores, and small mammals; birds, including raptors (birds of prey), wading birds, waterfowl, and migratory birds; reptiles; and amphibians. Fisheries and aquatic habitat will be discussed separately.

Casey Property (Including BLM In-Holdings).

Birds—Birds on the Casey property likely use the habitat provided by cliffs, caves, ponderosa pine woodlands and forest, grasslands, and edge habitat, as well as riparian and upland shrublands. Some of the species discussed below have been observed on the property.

Raptors. During the January 17 and 18, 2002 site visit, e²M biologists observed a golden eagle (*Aquila chrysaetos*) soaring above the Casey property. A probable prairie falcon (*Falco mexicanus*) nest was also observed in Beaver Creek Canyon during the site visit. **Figure 4** is a photograph of the prairie falcon nest. Other raptors using the property are believed to include the red-tailed hawk (*Buteo jamaicensis*) and Cooper's hawk (*Accipiter cooperii*). The American kestrel (*Falco sparverius*) is common in Wind Cave National Park and also would be expected to occur on these lands (Peterson 2000).

The long-eared, northern saw-whet, and great-horned owl (*Asio otus*, *Aegolius acadicus*, and *Bubo virginianus*, respectively) are the most likely owl species to occur on the Casey property. The prairie dog town located east of the homestead provides suitable habitat for burrowing owls, although it is not known if any occur here (Peterson 2000). **Figure 5** is a photograph of the prairie dog town on the Casey property.

Waterfowl, Wading Birds, and Shorebirds. Mallards (*Anas platyrhynchos*) are found everywhere there is water—from creeks to puddles—in Wind Cave National Park, and would be expected to occur in the same habitat on the Casey property. The blue-winged teal (*Anas discors*) is the other species of waterfowl likely to occur on the property. The great blue heron (*Ardea herodias*) has been reported on Beaver Creek in Buffalo Gap, South Dakota, and may also occur on these lands (Peterson 2000).

The upland sandpiper (*Bartramia longicauda*) is a shorebird that occurs in Wind Cave National Park grasslands, and would be anticipated to occur in the same habitat on the Casey property. The long-billed curlew (*Numenius americanus*), another shorebird, has been reported from private lands south of the southeast park gate, and could also occur on these lands (Peterson 2000).



**FIGURE 4. PHOTOGRAPH OF PROBABLE PRAIRIE FALCON NEST ON THE CASEY PROPERTY
(BEAVER CREEK CANYON)**



FIGURE 5. PHOTOGRAPH OF A PRAIRIE DOG TOWN ON THE CASEY PROPERTY

Migrants. Most of the migratory birds that are expected to occur on the Casey property are coniferous woodland, forest dwelling species. The hairy woodpecker (*Picoides villosus*), western wood-pewee (*Contopus virens*), cordilleran fly catcher (*Empidonax occidentalis*), plumbeous vireo (*Vireo solitarius*), black-capped chickadee (*Parus atricapillus*), white-breasted nuthatch (*Sitta carolinensis*), red-breasted nuthatch (*S. canadensis*), Townsend's solitaire (*Myadestes townsendi*), yellow-rumped warbler (*Dendroica coronata*), western tanager (*Piranga ludoviciana*), dark-eyed junco (*Junco hyemalis*), red cross-bill (*Loxia curvirostra*), and pine siskin (*Carduelis pinus*) are among the species expected to occur (Peterson 2000). It should be noted that, although the hairy woodpecker, black-capped chickadee, white-breasted nuthatch, and red-breasted nuthatch are typically migrants, they do occur as residents in Wind Cave National Park.

Bird species expected to use the mountain mahogany shrublands include the common poorwill (*Phalaenoptilus nuttallii*), dusky flycatcher (*Empidonax oberholseri*), gray catbird (*Dumetella carolinensis*), spotted towhee (*Pipilo* if any occur here (Peterson 2000). **Figure 5** is a photograph of the prairie dog town on the Casey property. *maculatus*), field sparrow (*Spizella pusilla*), Lazuli bunting (*Passerina amoena*), and indigo bunting (*Passerina cyanea*) (Peterson 2000).

Several species of birds are expected to use the grassland and edge habitat supported on the Casey property. The northern flicker (*Colaptes auratus*), black-billed magpie (*Pica pica*), chipping sparrow (*Spizella passerina*), vesper sparrow (*Pooecetes gramineus*), the grasshopper sparrow (*Ammodramus savannarum*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), and brown-headed cowbird (*Molothrus ater*) are among the species anticipated to occur (Peterson 2000).

The steep cliffs and canyons on the Casey property provide habitat for migratory bird species including the white-throated swift (*Aeonautes saxatalis*), violet-green swallow (*Tachycineta thalassina*), cliff swallow (*Hirundo fulva*), and the canyon wren (*Catherpes mexicanus*) (Peterson 2000).

Some bird species are anticipated to use the limited riparian habitat that occurs on the Casey property. The belted kingfisher (*Ceryle alcyon*), dusky flycatcher, common yellowthroat (*Geothlypis trichas*), yellow-breasted chat (*Icteria virens*), black-headed grosbeak (*Pheucticus melanocephalus*), and red-winged blackbird may use this habitat (Peterson 2000).

The Prairie dog town on the Casey property may also provide habitat for the horned lark (*Eremophila alpestris*) (Peterson 2000).

Mammals—Mammals expected to occur on the Casey property include carnivores, ungulates, and small mammals.

Carnivores. According to the property owner, mountain lion (*Felis concolor*), coyote (*Canis lupis*), and bobcat (*Felis rufus*) have been observed on the Casey property. The striped skunk (*Mephitis mephitis*) and American badger (*Taxidea taxus*) are carnivores known to exist in Wind Cave National Park and likely occur on these lands (Duckwitz and Muenchau 2001).

Ungulates. White-tailed deer (*Odocoileus virginianus*) and elk (*Cervus elaphus*) have been observed on the Casey Property. Mule deer (*Odocoileus hemionus*) and pronghorn (*Antilocapra americana*) also probably frequent the area.

Currently a commercial herd of American bison (*Bison bison*) graze on the Casey property. Ample forage and range exists on this property to allow the Wind Cave National Park herd to expand onto these lands, should they be acquired. **Figure 6** shows a herd of bison on the Casey property.

Small Mammals and Others. Small mammal trapping records from Wind Cave National Park indicate species likely to occur on the Casey property. The least shrew (*Cryptotis parva*), hispid pocket mouse (*Chaetodipus hispidus*), desert cottontail (*Sylvilagus auduboni*), least chipmunk (*Tamias minimus*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), northern pocket gopher (*Thomomys talpoides*), western harvest mouse (*Reithrodontomys megalotis*), meadow jumping mouse (*Zapus hudsonius*), bushy-tailed woodrat (*Neotoma cinerea*), southern red-backed vole (*Clethrionomys gapperi*), prairie vole (*Microtus pennsylvanicus*), and the northern flying squirrel (*Glaucomys sabrinus*) have been captured at the park, and would be expected to occur on these lands (Duckwitz and Muenchau 2001).

Black-tailed prairie dogs (*Cynomys ludovicianus*) were observed by e²M biologists during the January 2002 site visit. A photograph of the prairie dog town is provided as **Figure 5**.

Although the one known cave on the Casey property is reported to contain a significant amount of guano, it is unknown whether bats currently use the cave. However, several species have the potential to use the cave as a roosting or hibernaculum site. These include the long-eared myotis (*Myotis euotis*), little brown bat (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), fringed myotis (*Myotis thysanodes*), big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), the silver-haired bat (*Lasionycteris noctuagans*), and Townsend's big-eared bat (*Corynorhinus townsendii*) (Curtin 2002).



FIGURE 6. BISON HERD ALONG A TWO-TRACK VEHICLE TRAIL ON THE CASEY PROPERTY

Reptiles and Amphibians— Lizards have never been reported from Wind Cave National Park, and interviews with park employees and volunteers do not indicate any sightings have been made recently (Smith 1996). However, a few species of snakes do occur within the park. The prairie rattlesnake (*Crotalus viridis viridis*) is the only venomous snake found in the park, and is also the most common. Rattlesnakes have also been observed on the Casey property by the current and previous landowners (Sanson 1987).

The second most observed snake at Wind Cave National Park is the eastern yellowbelly racer (*Coluber constrictor flaviventris*), which occurs in the mixed-grass prairie of the park. As such it would be expected that the mixed-grass prairie on the Casey property would support the eastern yellowbelly racer. The bullsnake (*Pituophis melanoleucus*) and red-sided garter snake (*Thamnophis sirtalis parietalis*) are common snakes of Wind Cave National Park and are expected to occur on these lands. The western plains garter snake (*Thamnophis radix haydenii*), the most common garter snake in the plains surrounding the Black Hills, may also occur on the Casey property (Smith 1996).

Amphibians are likely restricted to naturally occurring springs and streams, as well as the few man-made stock ponds, on the Casey property. Studies at Wind Cave National Park (Smith 1996) indicate that Woodhouse's toad (*Bufo woodhousii*), the chorus frog (*Pseudacris triseriata*), and the northern leopard frog (*Rana pipiens*) occur in habitat that is also found on

the Casey property. Woodhouse's toad and the chorus frog were found in springs, while the northern leopard frog and chorus frog were found along Beaver Creek.

It is unlikely that the blotched tiger salamander (*Ambystoma tigrinum melanostictum*) occurs in the prairie dog town on this property, as typical habitat is not found there. Blotched tiger salamanders found in prairie dog towns of Wind Cave National Park likely used a catchment and/or vernal pond as breeding habitat (Smith 1996). The common snapping turtle (*Chelydra serpentina*) has been observed in the vicinity of Beaver Creek in the past, and could occur in this drainage on the Casey property (Smith 1996).

Public School Lands.

Birds— Birds on the public school lands likely use the habitat provided by cliffs, ponderosa pine woodlands and forest, grasslands, edge habitat, as well as riparian and upland shrublands. There are also seven stands of deciduous birch-aspen woodlands that are likely to support species not well represented in the limited deciduous woodlands of the park.

Raptors. Raptors described for the Casey property would likely occur on the public school lands as well.

Waterfowl, Wading birds, and Shorebirds. Waterfowl, wading birds, and shorebirds described for the Casey property would be expected, if habitat exists, to occur on the public school lands as well.

Migrants. Most of the migratory birds that are expected to occur on the public school lands are coniferous woodland/forest dwelling species. Migrants expected to occur on the public school lands would be similar to those described for the Casey property as similar habitat types are available. However, the aspen-birch stands on this property would likely support species not well represented in the park.

The warbling vireo (*Vireo gilvus*), red-eyed vireo (*Vireo olivaceus*), yellow warbler (*Dendroica petechia*), American redstart (*Setophaga ruticilla*), and ovenbird (*Seiurus aurocapillus*) are deciduous woodland/forest dwelling species that may use the seven birch-aspen stands on the public school lands.

Mammals— Mammals expected to occur on the public school lands include carnivores, ungulates, and small mammals.

Carnivores. Mountain lion, coyote, bobcat, striped skunk, and American badger are carnivores known to exist in Wind Cave National Park that could occur on these lands (Duckwitz and Muenchau 2001).

Ungulates. The public school lands are considered prime habitat for elk (Wind Cave National Park 2001). Other ungulates anticipated to occur on the public school lands include white-tailed deer, mule deer, and pronghorn.

Small Mammals. Small mammal trapping at Wind Cave National Park can be used to identify species likely to occur on the public school lands. The species identified as potentially occurring on the Casey property could also inhabit the public school lands.

Reptiles and Amphibians— As discussed previously, lizards have never been reported from Wind Cave National Park, and therefore are not expected to occur on the public school lands. However, species of snakes that have been described for the Casey property would be anticipated to occur here too.

As there are no ponds on the public school lands and the stream habitat is limited, amphibians are not likely to occur frequently on this property. Woodhouse's toad, the chorus frog, and the northern leopard frog, have been identified in the park and could inhabit springs and/or streams on these lands.

Pearson Tract.

Birds— Birds on the Pearson tract likely use the habitat provided by the ponderosa pine woodlands and forest, grasslands, and edge habitat.

Raptors. Raptors of Wind Cave National Park described as occurring or potentially occurring on the Casey property may be supported on the Pearson tract as well.

Waterfowl, Wading birds, and Shorebirds. Waterfowl and wading birds are not expected to occur on the Pearson tract, as suitable surface water and/or wetland habitat is not supported.

Shorebirds of Wind Cave National Park identified as occurring or potentially occurring on the Casey property may be supported on the Pearson tract as well.

Migrants. Most of the migratory birds that are expected to occur on the Pearson tract are coniferous woodland/forest dwelling species. With the exception of species that use cliffs, canyons, shrublands, and riparian areas, the migratory bird species of Wind Cave National Park described as occurring or potentially occurring on the Casey property may be supported on the Pearson tract as well.

Mammals— Mammals expected to occur on the Pearson tract include carnivores, ungulates, and small mammals.

Carnivores. Mountain lion, coyote, bobcat, striped skunk, and American badger are carnivores known to exist in Wind Cave National Park that could occur on these lands (Duckwitz and Muenchau 2001).

Ungulates. Ungulates including elk, white-tailed deer, mule deer, and pronghorn are anticipated to occur on the Pearson tract.

Small Mammals. The species of Wind Cave National Park described as occurring or potentially occurring on the Casey property could also inhabit the Pearson tract.

Reptiles and Amphibians— As discussed previously, lizards have never been reported from Wind Cave National Park, and therefore are not expected to occur on the Pearson tract. However, species of snakes that have been described for the Casey property would be anticipated to occur here too.

As there are no ponds or true streams on the Pearson tract, it is unlikely that amphibians would occur on these lands. However, suitable habitat does exist for reptile species that have been reported from Wind Cave National Park.

Fisheries and Aquatic Habitat

Of the lands being considered for inclusion in the Wind Cave National Park boundary expansion, the property most likely to support fish and aquatic habitat is the Casey property.

Casey Property (Including BLM In-Holdings). Fisheries and aquatic habitat on the Casey property is generally associated with Beaver Creek. In September 2001, an electro-shocking project was conducted in the creeks of Wind Cave National Park to determine the presence of Plains topminnow (*Fundulus sciadicus*). During this survey, white sucker (*Catostomus commersoni*), mountain sucker (*Catostomus platyrhynchus*), creek chub (*Semotilus atromaculatus*), longnose dace (*Rhinichthys cataractae*), fathead minnow (*Pimephales promelas*), and brook trout (*Salvelinus fontinalis*) were observed in the Beaver Creek drainage. Therefore, it is expected that, if fish are supported in the stretch of Beaver Creek on the Casey property, these species are likely to occur.

Public School Lands. The small, intermittent drainages on the public school lands may provide adequate aquatic habitat to support fish. The species composition in these drainages would likely be similar to those observed in Wind Cave National Park streams. However, it is possible that these drainages do not flow enough and/or are not large enough to support fish.

Pearson Tract. The Pearson tract, situated on high ground, does not have any significant surface water features to support fish or aquatic habitat.

Threatened and Endangered Species

Under the Endangered Species Act (ESA), an “endangered species” is defined as any species in danger of extinction throughout all or a significant portion of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range.

Under Title 34A (Environmental Protection), Chapter 8 (Endangered and Threatened Species), Section 34A-8-1-1 (Definitions) of the South Dakota State Statutes, an “endangered species” is defined as “any species of wildlife or plant which is in danger of extinction throughout all or a significant part of its range other than a species of insect determined by the game, fish and parks commission or the secretary of the DOI to constitute a pest whose

protection under this chapter would present an overwhelming and overriding risk to man.” Under this statute, a “threatened species” is defined as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”

Casey Property (Including BLM In-Holdings). The bald eagle (*Haliaeetus leucocephalus*), federally listed as threatened (proposed for de-listing) and state-listed as endangered, is known to spend time at Wind Cave National Park during migration. According to park staff, several bald eagles have been observed feeding on elk carcasses for extended periods during their migration through the area (Muenchau 2002). Therefore, it can be assumed that bald eagles may occupy the Casey property during migration as well.

The black-tailed prairie dog, a candidate species for listing under the ESA, and the mountain lion, listed as threatened by the state of South Dakota (Muenchau 2002a), are known to occur on the Casey property.

The black-footed ferret (*Mustela nigripes*) is a federally and state listed endangered species. Wind Cave National Park staff have surveyed for this species several times, and no accounts of the black-footed ferret have occurred in the park since 1977 (Muenchau 2002). However, suitable black-footed ferret habitat is provided by the prairie dog towns of the park as well as the Casey property, and reintroduction of this species could occur on these lands.

Of the bats with the potential to occur on the Casey property, the Townsend’s big-eared bat is probably of the most concern. Although none of the bats are federally or state listed, the Townsend’s big-eared bat is monitored by the USFWS, SDNHP, and is considered the highest priority for funding, planning, and conservation action by *The Western Bat Species: Regional Priority Matrix* (1998) in all of its range. Other bats monitored by the USFWS and SDNHP that potentially occur on the Casey property include the fringe-tailed myotis (both), silver-haired bat (SDNHP), and the northern myotis (SDNHP) (Curtin 2002).

Federally listed threatened, endangered, or candidate plant species (e.g., species for which enough information exists to warrant immediate protection under the ESA and/or those suspected to be in need of listing but for which insufficient information is available to make a determination) were not found during rare plant surveys at Wind Cave National Park (Marriott 1999). However, the same survey found three plant species listed as special concern by the state of South Dakota. These included the hedgehog cactus (*Echinocereus viridiflorus*), Hopi-tea (*Thelesperma megapotamicum*), and an Easter daisy (*Townsendia* sp.) (Marriott 1999). Park staff also noted that seven or eight rare plants monitored by the SDNHP occur in the Beaver Creek drainage; however, none have been found in Wind Cave National Park (Curtin 2002).

Public School Lands. The only threatened or endangered species likely to occur on the public school lands are the bald eagle and mountain lion. As these lands support elk, it is possible that scavenging bald eagles may temporarily inhabit the property much as they do Wind Cave National Park during migration.

It is unknown whether or not black-tailed prairie dog towns or caves occur on this property. As such it is unknown whether prairie dogs or bats live on the public school lands.

The rare plant species identified in the park survey (Marriott 1999) have the potential to occur on the public school lands; however, it is unlikely that the species identified in the Beaver Creek drainage are supported by the small streams of this property.

Pearson Tract. The same threatened or endangered species that could potentially occur on the public school lands would be expected to occur on the Pearson tract. This includes the bald eagle and mountain lion.

It is unknown whether caves occur on this property. As such it is unknown whether cave dwelling bats live on the Pearson tract.

It is possible that the rare plant species identified in the park survey (Marriott) occur on the public school lands; however, it is extremely unlikely that the species identified in the Beaver Creek drainage are supported by the small, natural drainages of this property.

RESOURCE SIGNIFICANCE

The Casey property and public school lands support the most significant biological resources of the study area. Several unique plant communities not well represented within the park occur on these lands. These include the extensive mountain mahogany shrublands and the rocky Minnekahta tablelands (sparse ground cover with juniper draws) located on the Casey property (Klukas and Broyles 1986).

Several stands of deciduous, birch-aspen forest/woodland, which are restricted to the forested uplands in the northern portion of Wind Cave National Park, occur on the public school lands. Whereas the other deciduous types in the park are primarily restricted to floodplains and riparian corridors, aspen and birch stands occur on slopes, benches, valley bottoms, and along the margins of floodplains (Cogan et al. 1999).

The habitat provided by these plant communities are not well represented in the park, and support diverse and numerous wildlife species. Adding the Casey property and public school lands to the park provides prime habitat for elk, bison, and deer, increasing the Wind Cave National Park rangeland by approximately 15%.

The mountain mahogany shrublands provide excellent winter forage and thermal cover for deer, and other wild ungulates, potentially including bighorn sheep. As winter approaches and plant growth ends, nutritional value in all forage (graminoids) declines. As snow accumulates, the remaining leaves and new twigs on shrubs are much easier to reach than grasses and other non-woody plants. At this time of year, stands of shrubs on sheltered foothill slopes become increasingly important to deer that are struggling to maintain enough energy to survive and, in the case of females, sustain unborn fawns.



FIGURE 7. MOUNTAIN MAHOGANY STAND ON RIDGE SLOPE OF THE CASEY PROPERTY

Expanding the winter range for deer and elk that use the park is significant as these shrublands are not currently well represented within the park. **Figure 7** is a photograph of a typical, dense mountain mahogany shrubland on the Casey Property.

The deciduous birch-aspen stands of the public school lands, and dense shrublands of the Casey property, potentially support bird species not currently well represented in the park. These include the field sparrow, Lazuli bunting, indigo bunting, warbling vireo, red-eyed vireo, yellow warbler, American redstart, and ovenbird

Habitat for the black-tailed prairie dog, a candidate species for listing under the ESA, and the mountain lion, listed as threatened by the state of South Dakota (Muenchau 2002a), is known to occur on the Casey property, and these species have been observed on the lands before.

The prairie dog town on the Casey property provides the habitat suitable for black-footed ferret reintroduction. Habitat for bighorn sheep reintroduction may also be supported, but must be confirmed through future studies.

UNGULATE EXPOSURE TO CHRONIC WASTING DISEASE

On January 6, 1998, Wind Cave National Park was advised that a case of Chronic Wasting Disease (CWD) had been discovered at Dr. Casey's Rapid Valley Ranch east of Rapid City, South Dakota. At least one elk had been diagnosed with CWD and there were two other

“suspect” elk removed from the facility for testing. The concern to the park is that the Casey’s moved elk back and forth from the Rapid Valley Ranch to their Cedar Ranch (now Tract 02-102 in **Figure 1**), which is adjacent to Wind Cave National Park. On January 7, 1998, the state collected 26 mule deer and two white-tailed deer that were improperly enclosed in the Casey facility next to Wind Cave National Park. Fourteen of the deer were tested for CWD with one white-tailed deer testing positive and one mule deer testing inconclusive. The other 12 tested negative. Due to the close proximity of the disease to the park, the uncertainty of the mode of transmission of the disease, and the possibility of fences to fail there is a real concern for the risk of acquiring the disease (Roddy 1998). CWD is only known to affect members of the cervidae family, specifically elk and deer.

According to the latest scientific evidence, CWD is a progressive, debilitating neurological disease that affects the central nervous system (Roddy 1998). CWD was first diagnosed in a captive elk research facility in 1967; subsequently in free-ranging mule deer, white-tailed deer, and elk; and in privately-owned elk residing in game ranches in a few western states and provinces (SDGF&P1999, state of South Dakota 2001). CWD is relatively rare, and its geographic distribution is limited as evidenced by cases that have been documented in contiguous counties in northeastern Colorado, southeastern Wyoming, western Nebraska, South Dakota, and Wisconsin. CWD probably infects 5% to 15% of deer in a small endemic area of north-central Colorado and southeastern Wyoming, 1% or fewer of the deer in surrounding mountain and plains areas, and less than 1% of elk in endemic areas (State of South Dakota 2001). All research, including housing domestic cattle at wildlife facilities in direct or indirect contact with CWD, indicates that the disease has not been transmitted to ungulates other than deer and elk (SDGF&P 1999, State of South Dakota 2001, USDA-APHIS 1996); however, the risk cannot be excluded at this time.

The most obvious and consistent clinical signs of CWD are weight loss over time, accompanied by behavioral changes (SDGF&P 1999, State of South Dakota 2001, USDA-APHIS 1996). In the later stages of the disease, emaciation, excessive salivation, increased drinking and urination, stumbling, trembling, and depression may precede death (State of South Dakota 2001). The clinical disease, which occurs in animals more than 18 months of age, is always fatal.

Neither the agent causing CWD nor its mode of transmission has been definitively identified. However, it appears to be associated with the accumulation of an abnormal protein, protease-resistant prion protein (PrP^{res}), in brain tissue (State of South Dakota 2001). Experimental and circumstantial evidence suggest that transmission occurs through animal-to-animal contact, and/or contamination of feed or water sources with saliva, urine, and/or feces. CWD seems more likely to occur in areas where deer or elk are crowded or where they congregate at man-made feed and water stations (SDGF&P 1999, State of South Dakota 2001).

Currently there are no validated live-animal diagnostic tests for CWD in elk, so definitive diagnosis is based on postmortem examinations. Tonsillar biopsy can be used to detect preclinical CWD in deer; however, false negative results may occur early in the course of disease (Wild 2001). The diagnosis of CWD is based on microscopic examination of portions of the brain from suspected cases (State of South Dakota 2001, USDA-APHIS 1996). Results

of a study published in the Journal of General Virology (1999) indicate “CWD can be detected in lymphoid tissues draining the alimentary tract within a few weeks after oral exposure to infectious prions and may reflect the initial pathway of CWD infection in deer.”

As a result of discovering deer and elk with CWD on the southern portion of the Casey property (Casey Ranch Limited partnerships), which is separated by fences from the northern portion, the land was quarantined in 1998. Animals on the northern portion of the ranch (tract 02-101 on **Figure 1**) showed no signs of the disease; however, to date, there has not been any testing of cervids for CWD on this portion of the property. The fencing within the Casey property and the shared boundary fence between Wind Cave NP and the western edge of the southern tract (02-102) of the Casey property has so far appeared effective. It is believed that these fences are keeping free ranging park deer and elk from moving onto this part of the property. This shared boundary fence has an electrified, single strand wire on both sides of the 7-foot high fence. This charged fence helps prevent deer and especially elk from nose to nose contact. This electrified portion of the fence is maintained year-round. The fence on the northern part of the southern tract (02-102) is also 7-feet high and appears to be effective in keeping the free ranging deer and elk on the northern portion from coming in contact with the southern portion of the property where CWD was known to occur.

After following procedures prescribed and approved by the state veterinarian of the South Dakota Animal Industry Board for three years the quarantine was lifted. The state veterinarian has the authority, in consultation with the designated epidemiologist, to lift the five-year quarantine earlier if they feel the landowner met the needs and demands of the state. An act passed on January 21, 1998 and enacted by the legislature of the state of South Dakota revised the rule-making authority of the Animal Industry Board to provide for promulgation of certain rules with regard to CWD in cervidae, and to declare an emergency. According to conversations with the NPS wildlife veterinarian, it is unclear how long CWD remains in the soils where infected animals have lived. In a case in Colorado where a herd was killed after the disease was discovered, CWD emerged in reintroduced elk 3.5 years after the original elk were killed and the soil was treated, and in deer two years after (Wind Cave National Park 2002). Although disease transmission from environmental contamination cannot be confirmed in this case, it is a plausible explanation. Future research will address this potential for environmental contamination.

RESOURCE SIGNIFICANCE

The history of CWD on the southern portion of the Casey property provides a unique opportunity for the National Park Service to assist with research into the disease and its long-term effects on the environment. The South Dakota Animal Industry Board and SDGF&P are working to reduce CWD occurrence in private, captive herds, and determine if, and to what degree, it occurs in free-ranging animals.

CULTURAL RESOURCES

An overview of archaeological sites in Custer County reveals a wealth of cultural resources. There are 2,095 recorded sites (as of July 1999) in Custer County. Fifty-two archaeological sites have been located within the current boundaries of Wind Cave National Park. Two historic bridges, a historic district consisting of 19 buildings, and traces of three historic wagon trails exist within the park boundaries (NPS 2000). A 1993 study of rock art in the southern Black Hills listed ten sites in Custer County. Nine of the sites are on private land and one is in Black Hills National Forest. Eight of the sites are listed on or eligible for the NRHP (Sundstrom 1993).

Private landowners do not often survey their property for cultural resources. Therefore, there is limited information regarding cultural resources within the Casey and Pearson properties. What is known is that an important archeological site, the Sanson Buffalo Jump, is located on the Casey property (NPS 2000). The buffalo jump was documented by Dr. Larry Agenbroad and volunteer student crews from Chadron State College in 1972. They obtained a radiocarbon date of 1030 A.D. from a piece of charcoal found in an excavated hearth. Carl Sanson, the former owner of the Milliron Ranch (part of the Casey property) stated that he knew of approximately 50 tipi rings on his property (Sanson 1987). The former Sanson Ranch (now part of the Casey property) has been a working ranch since the early 1880s. There is a home and associated outbuildings dating to 1918 on the property. With such a long period of continual use, the potential exists for a wealth of historic resources to occur on the property.

It appears that the public school lands and BLM tracts have not been subjected to cultural resource surveys (though it is believed that there are petroglyphs on the public school lands). With the density of cultural resources in the surrounding area, the likelihood of identifying sites on the properties is high.

The Black Hills and Wind Cave National Park are ethnographically important to the Lakota, Arapaho, and Cheyenne tribes. The strongest attachment is among the Lakota of the Pine Ridge Reservation. They see the area encompassing Buffalo Gap, Wind Cave, and Hot Springs as a single inseparable landscape that encompasses much of their cultural history. This area includes the study area.

Different classes of cultural resources are vulnerable to a variety of threats. For example, pottery may be damaged or destroyed by grazing cattle. Structures, on the other hand, may be vulnerable to neglect. Other sites might be impacted by road building, various construction activities, or landscaping. Without proactive management, important resources may be lost.

RESOURCE SIGNIFICANCE

The Sanson Buffalo Jump reveals a long history of human use in the area. It is a site type not found in any other national park unit (though another buffalo jump was discovered in 2000 at the northern end of Wind Cave National Park after a fire). Known resources, the documented Sanson Buffalo Jump, homestead buildings, and tipi rings on the former Sanson Ranch, are

part of a larger cultural landscape (2,095 recorded sites in Custer County) that contains a wealth of cultural resources. It is possible that the study area contains additional significant cultural resources. The study area is part of the Lakota, Arapaho, and Cheyenne ethnographic landscape.

As noted above, cultural resources are vulnerable to a variety of threats, including cattle grazing, building structures and roads, other construction activities, and landscaping. In addition, natural processes such as erosion present a threat to cultural resources, especially archeological sites. As such, the true significance of the cultural resources in the study area may never be known if the boundary is not expanded to include these lands.

SOCIOECONOMIC RESOURCES

Regional Setting

Wind Cave National Park is located in Custer County, in the Black Hills region of southwestern South Dakota. The park is approximately 10 miles north of Hot Springs (Fall River County) and 55 miles south of Rapid City (Pennington County). The Custer County towns of Pringle and Custer are approximately 7 miles west and 20 miles northwest of the park, respectively.

Much of the land in southwestern South Dakota is administered by government agencies. The USDA Forest Service manages the Black Hills National Forest and Buffalo Gap National Grassland, encompassing 1,235,917 acres. The Oglala Sioux Nation owns the Pine Ridge Indian Reservation that covers 2,000,000 acres. There are five National Park Service Units in the area: Badlands National Park, Mount Rushmore National Memorial, Jewel Cave National Monument, Minute Man National Historical Site, and Wind Cave National Park. Together, these units comprise 273,618 acres.

The state of South Dakota administers the 73,000-acre Custer State Park on the northern boundary of Wind Cave National Park. In addition, the above agencies and others, oversee many smaller parcels. The Black Hills region has numerous recreational and educational areas that are managed by various agencies and the private sector provides museums, historical sites, and other attractions. The diversity and abundance of attractions make the Black Hills region a major tourist destination.

Population. Custer County encompasses about 1,158-square miles, with a population of 7,275. Custer is the county seat and home to approximately 25% of county residents. The Custer County population increased by 17.7% from 1990 to 2000 (U.S. Department of Commerce, Census Bureau 2001).

Rapid City, with a population of 59,607, is the largest city near the park. Rapid City, Custer (population 1,860), and Hot Springs (population 4,129) serve as gateway communities to Wind Cave National Park. They lie in Pennington, Custer, and Fall River counties, respectively. The Fall River County population in 2000 was 7,453, a 1.4% increase from

1990, and the Pennington County population was 88,565 (US Census Bureau 2001). The following tables show regional population figures.

TABLE 2. COUNTY POPULATION FIGURES

COUNTY	1990 POPULATION	2000 POPULATION	PERCENT CHANGE
Custer	6,177	7,275	17.7
Pennington	80,801	88,565	8.9
Fall River	7,346	7,453	1.4

Source: U.S. Commerce Department, Bureau of the Census 2001.

TABLE 3. NEARBY COMMUNITIES, POPULATION FIGURES

COMMUNITY	1990 POPULATION	2000 POPULATION	PERCENT CHANGE
Custer	1,741	1,860	6.3
Rapid City	54,022	59,607	9.3
Hot Springs	4,318	4,129	- 4.5

Source: U.S. Commerce Department, Bureau of the Census 2001.

Economic Conditions. Employment in Custer County totaled 4,002 full and part-time jobs in 1999. Employment in Fall River and Pennington counties was 3,964 and 65,201, respectively, in 1999. **Table 4** illustrates changes in employment over the past 20 years. Unemployment in the region as of November 2001 averaged 4% in Custer County, 3.6% in Fall River County, and 2.8% in Pennington County. Unemployment in Rapid City was 2.8% as of November 2001. These averages compare to statewide averages of 2.9% percent for South Dakota as of November 2001 (South Dakota Department of Labor, 2001).

TABLE 4. TOTAL COUNTY EMPLOYMENT, 1979 TO 1999

YEAR	CUSTER COUNTY	FALL RIVER COUNTY	PENNINGTON COUNTY
1979	2,625	4,313	44,694
1989	3,366	3,849	53,278
1999	4,002	3,964	65,201
Percent change	52	-8	45.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis, 2001

Farming, logging, lumbering, mining, ranching, and tourism are the leading industries in Custer County. Agricultural professions account for approximately 50% of employment, and the government is the largest non-farm employer in the county, employing 765 individuals as of November 2001. Services and trade are other significant non-farm employers (South Dakota Department of Labor 2001).

Hot Springs is the center of economic activity in Fall River County. Agricultural professions account for approximately 33% of employment in the county. Tourism, trade, services, and the government are the principal employers, with government agencies employing 1,035 individuals as of November 2001 (South Dakota Department of Labor 2001).

Rapid City is the center of commerce, transportation, and communications for southwest South Dakota and as such has a diverse economy. The service and retail industries are the largest employers in the city. Together they employed 27,100 people as of November 2001 (South Dakota Department of Labor 2001).

Personal Income. From 1969 to 1999, total annual personal income growth was moderate: 6.7% in Fall River County, 7.9% in Custer County, and 8.6% in Rapid City. This compares to 7.7% for the state and 8.0% for the United States. Personal income growth figures for 1989 and 1999 are presented in **Table 5** (U.S. Department of Commerce 2001).

TABLE 5. PERSONAL INCOME

	1989	1999
Custer County	\$88,786,000	\$138,663,000
Fall River County	\$102,887,000	\$155,766,000
Rapid City, SD	\$1,281,995,000	\$2,210,691,000
South Dakota	\$10,288,122,000	\$18,358,337,000

Source: US Department of Commerce, Bureau of Economic Analysis 2001.

Below average personal incomes translate into local poverty levels that are slightly above the national average. According to the U.S. Census Bureau, 13.3% of the national population lived in poverty in 1997. This figure is slightly higher in Pennington, Custer, and Fall River counties: 14.3%, 13.5% and 16.5%, respectively. None of the percentages are far from the South Dakota average of 14% (U.S. Department of Commerce, Census Bureau 2001).

Per capita personal incomes in the region lag behind state and national averages. Per capita personal income ranged from \$19,739 in Custer County to \$25,088 in Rapid City compared to the national average of \$28,546 (see **Table 6**).

Baseline Socioeconomic Factors Related to Wind Cave National Park

Visitors to Wind Cave National Park, park staff, and their households are integral to the regional economic and social structure. Some key dimensions of the park role within the region are described below.

TABLE 6. PER CAPITA PERSONAL INCOME

Geographic Area	1989	1999	Percent of 1999 US
United States	\$18,566	\$28,546	100
South Dakota – Statewide	\$14,767	\$25,041	87.7
Custer County	\$14,226	\$19,739	69.1
Fall River County	\$13,636	\$22,830	80
Rapid City , SD	\$15,942	\$25,088	87.9

Source: US Department of Commerce, Bureau of Economic Analysis, 2001.

Staffing at Wind Cave National Park has risen over time as visitation has increased and visitor facilities, trails, and other improvements have been planned and completed. Fiscal year 2000 employment was 41 full-time employees. Construction contractors, researchers, and volunteers supplement park staff. It is estimated that for every ten NPS employees, an additional job is created in the community from the employees spending their pay. When students' parents are employed on federal lands, Federal Lands Impact Aid (funding) is sent directly from the federal government to affected school districts (Wind Cave National Park 2001).

Another measure of the Wind Cave National Park economic role is the stimulus provided by ongoing operating and capital expenditures. The budget for fiscal year 2001 was \$1,841,000. Salaries, wages and benefits paid to park staff comprise the largest share of the Wind Cave National Park annual operating budget. The remainder is allocated for facility and vehicle maintenance, utilities, miscellaneous supplies, travel, and the like. Substantial portions of the park annual expenditures circulate through the regional economy in the form of consumer and business purchases, yielding indirect economic impacts (Wind Cave National Park 2001).

Under current law, federal landholders are expected to compensate local governments for the losses to their tax base that federal ownership implies. The most common compensation program is known as Payments in Lieu of Taxes, or PILT. Payments are calculated following a complex formula that takes into account the population of the county, change in Consumer Price Index, previous payments under other compensation programs, and state pass-through laws (requiring payments to pass from counties to local communities rather than staying with the county government). In 2000, federal PILT amounted to \$87,653 for Custer County, and \$185,505 for Fall River County (U.S. Department of Interior, Bureau of Land Management 2000).

In addition to the direct stimulus attributable to the park, spending by Wind Cave National Park visitors contributes to the local economy. Trends in visitation vary with regional travel trends, gas prices, demographics, and the like. Annual park visitation levels in 1997, 1998, and 1999 were 832,033, 849,974, and 761,717, respectively (Wind Cave National Park 2001).

PARK INFRASTRUCTURE AND OPERATIONS

Infrastructure

This section will describe the infrastructure (e.g. utility systems, roads, structures) of Wind Cave National Park, as well as the study area. The study area is included in this discussion to present the utility systems, roads, and structures that would be acquired, and subsequently managed by the National Park Service under the preferred alternative.

Wind Cave National Park. Wind Cave National Park receives potable water from two wells that produce between 40- and 65-gallons per minute. Water is pumped from the wells, treated with chlorine, and stored in four buried concrete reservoirs totaling approximately 500,000 gallons. In Calendar Year 2001, 3,000,000 gallons of water was obtained from these wells. The park has used up to 10,000,000 gallons of water in a single year (Schrempp 2002).

Currently, three lined sewage lagoons (evaporation ponds) handle effluent from the park's sewer system. These lagoons have been filled to capacity every three years since 1989, and a temporary discharge permit from the state of South Dakota has been obtained each time to discharge the effluent. A line item construction project is under way to replace the inadequate sewage lagoons (Schrempp 2002).

Wind Cave National Park purchases electricity from Black Hills Power and Light who owns and maintains a majority of the high voltage power lines at the park. They do not own and maintain the primary power in the cave (2,400 volts) for the lighting system, and the line that runs from the Wind Cave Elevator Building to the potable water wells in Wind Cave Canyon (Schrempp 2002).

The National Park Service has jurisdiction over the two paved highways, United States Highway (US) 385 and State Highway 87, that extend through the park, and therefore is responsible for all maintenance and snow removal on the two routes (Schrempp 2002).

Casey Property. The only utility systems present on the Casey property are six miles of power lines that deliver electricity to several water supply well pumps. These water supply wells are used to fill small stock reservoirs that support the commercial bison herds on the property.

Two-track trails and two access roads from Custer County Road 101 are the only roads on the Casey property.

There are existing structures on the Casey property, including corrals, barns, an elk/bison processing facility, and other ranching operation facilities. There is also a house on the property that was built in 1918 and is currently unoccupied.

Public School Lands. The public school lands have no utility systems, roads, or structures.

Pearson Tract. The Pearson tract has no utility systems, roads, or structures.

Operations

This section will focus on the operations of Wind Cave National Park. The effects of the alternatives on the operations of the Casey property, public school lands, and Pearson tract are outside the scope of this document and therefore will not be discussed further.

Wind Cave National Park. The park budget for Fiscal Year (FY) 2001 was \$1,841,000, and in FY 2000, the park had 41 full-time employees. This included 24 permanent staff, 17 seasonals and interns, and 127 Volunteers in Parks who contributed 11,632 hours of work. These personnel were distributed among resource management, maintenance, visitor and resource protection, administration, and interpretation staffing.

Facilities at the park are concentrated in the headquarters/visitor center area off of US 385. Buildings in this area include the headquarters/visitor center building, the Wind Cave Elevator Building, staff housing, and maintenance facilities.

There is also a bison sorting facility in the northern portion of the park. This facility, which includes corrals and holding pens, is used during the annual bison roundup. Typically bison are rounded up in October and 80-100 yearlings are culled from the herd. This culling operation is performed annually to keep the number of bison within the carrying capacity of the park. A high percentage of the bison go to Native American tribes. Any bison that is brought into the facility is tested for brucellosis. The last case of brucellosis in the park bison herd was 1984, while park bison were last vaccinated in 1998. This sorting facility is also used every few years to drive elk into for reducing the numbers within the park to below 500 individuals.

There are over 29 miles of designated trails within Wind Cave National Park, the majority of which are derived from an old fire road system. Converting roads to trails is consistent with current NPS trail standards. Of the nine trails at the park, six are day-use only (Wind Cave National Park 2000). According to park staff, this trail system is relatively young, approximately 10 years old (Wind Cave National Park 2002), and prior to 1995 trail maintenance was limited to the Centennial Trail and two nature trails (Wind Cave National Park 2000).

Fire management has occurred at Wind Cave National Park since September 1973, when the first prescribed burn within the boundaries was conducted. In 1999, the *Wind Cave National Park Fire Management Plan* was approved and implemented. As part of this plan, the Fire Management Objectives of Wind Cave National Park are: (1) to reduce the incidence and extent of human-caused fires; (2) through the use of prescribed fire, allow fire to function in fire-dependent ecosystems; (3) to use prescribed fire to meet management objectives; (4) to protect life, property, and park resources from the effects of unwanted fire; and (5) to prevent adverse impacts from fire suppression (Wind Cave National Park 1999).

The *Wind Cave National Park Fire Management Plan* also identified constraints to fire management within the park. In addition to these general constraints, park staff have indicated

that the “keyhole,” the large notch in the park boundary formed by the northern portion of the Casey property, has fire management implications. Access and topographic constraints resulting from the presence of the “keyhole” has restricted the implementation of a comprehensive fire management program in this part of the park.

RESOURCE SIGNIFICANCE

The elk and bison sorting facility on the Casey property could potentially be used by the Wind Cave National Park staff during the annual roundup of park herds. This would eliminate the challenges associated with driving animals congregated in the southern end to the current facility in the northern part of the park. The time it takes to corral the animals would be reduced, increasing the operational efficiency of the annual roundups. In addition, the barns could provide storage for equipment, such as all-terrain vehicles (ATVs), which could be used during the roundups or other appropriate operations in the southern part of the park.

Acquisition of the Casey property would also allow for and facilitate fire management in the “keyhole” region of Wind Cave National Park. Fire management on all of the study area, especially the Casey property, would help reduce the risk of a catastrophic wildfire in and around the park. The existing limitations on applying fire management in this area of the park would be alleviated, and the topography of the Casey property could be used to the advantage of the program. The acquisition of at least the Casey property would provide topographic boundaries from which burns could be conducted more safely. The largest wildfires experienced since the park’s creation have burned from the park into the study area. As a result there is a great need to remove the fuels (dead pine and juniper) still persisting from these fires (Klukas and Broyles 1986).

VISITOR EXPERIENCE AND UNDERSTANDING

Wind Cave National Park had 761,717 visitors in 1999, which was down from 850,985 in 1998. June, July, and August are the busiest months of the year (Wind Cave National Park 1994). Of the 1999 visitation, 78,476 were there primarily to see the cave (Wind Cave National Park 2001). Twenty-one caves are protected and preserved in the park, including Wind Cave, the longest cave (approximately 100 mapped miles), and Coyote Cave, the second longest cave (approximately 1,200-mapped feet).

In 1999, 10,351 visitors used the developed campground at the park in 1999, and only 289 visitors were backcountry campers (Wind Cave National Park 2001). The Elk Mountain campground has 75 sites for tents and recreational vehicles. The campground rarely fills to capacity but frequently fills to 75% capacity. Relatively few visitors avail themselves of the opportunity for day and overnight use of the backcountry. Most casual hikers confine their activities to the frontcountry (i.e., developed area), nature trails, the established trail system, and the Centennial Trail. However, according to park staff, the demand for backcountry experiences is on the rise (Wind Cave National Park 2000, 2002).

Visitors to Wind Cave National Park may also travel to several other attractions nearby. These include Custer State Park, Black Hills National Forest, Mount Rushmore National Memorial, Jewel Cave National Monument, Badlands National Park, and the Mammoth Site (a nonprofit educational/scientific institution in Hot Springs, South Dakota).

Information and interpretation is a critical aspect of visitor experience and understanding. At Wind Cave National Park, information and interpretation is provided at information desks, with exhibits in the visitor center, through a diversity of ranger-led cave tours tailored to the desired experiences of the visitor, and on nature trails. Currently, interpretation at the park focuses on the exploration of Wind Cave; the cave complexity, features, and minerals; the mixed grass prairie ecosystem and the transition to the Black Hills woodlands and forests; and, to a limited extent, prehistoric and historic occupation of the area, the cultures of the early inhabitants, and their interactions with European settlers (Wind Cave National Park 1994, 2002).

Currently, opportunities for limited-mobility visitors are few at the park. However, most visitor-oriented areas (visitor center, restrooms, etc.) of the buildings are accessible. Scenic viewpoints along the park road are also accessible. There are also very limited concessions services at Wind Cave National Park at this time. This includes film sales in the bookstore and vending machines.

ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act of 1969 (NEPA) mandates that environmental assessments disclose the environmental impacts of a proposed federal action. In this case, the proposed federal action is the implementation of the preferred alternative of this boundary study and environmental assessment. This chapter analyzes the potential effects of the management alternatives on cultural resources, natural resources, socioeconomic resources, visitor experience and understanding, and park operations.

The first part of this chapter discusses policy and terminology related to cumulative impacts and impairment of national park resources. The next section discusses methods the planning team used to identify impacts and includes definitions of terms. The alternatives are then analyzed in the order they appear in the “Alternatives for Boundary Expansion” section. Each impact topic includes a description of the positive and negative effects of the alternative, a discussion of cumulative effects, and a conclusion.

CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) regulations, which implement NEPA, require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as:

The impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

Cumulative impacts are considered for both the no-action and action alternatives. To determine potential cumulative impacts, the planning team considered past actions by the National Park Service and others, and consulted neighboring agencies and governments. Development and industrial activities that have occurred in the recent past, are now underway, or would be implemented in the reasonably foreseeable future were included.

These projects or actions were evaluated in combination with the impacts of each boundary expansion alternative to determine if any cumulative effects on aesthetics and visual resources, cave resources, natural resources, cultural resources, socioeconomic resources, park infrastructure and operations, and visitor experience would be expected. Because most of these cumulative actions are minor, evaluation of cumulative impacts was based on a general description of projects or actions.

The Rocky Mountain Elk Foundation (RMEF) and The Nature Conservancy (TNC) are currently acquiring lands in the Black Hills region to protect prime elk habitat and viewsheds to Buffalo Gap, South Dakota.

If the Casey property were not sold to the National Park Service, likely development plans for the land include a residential subdivision, a big game ranch, and/or a guest ranch.

Ranchette and other residential subdivision is an apparent trend in the areas surrounding Wind Cave National Park.

IMPAIRMENT OF NATIONAL PARK RESOURCES

National Park Service policy (Management Policies 2001 and DO-12) requires analysis of potential effects to determine whether or not alternatives or actions would impair park resources. NPS managers must seek ways to avoid, or minimize to the greatest degree practicable, adversely impacting park resources and values. However, laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that would otherwise be present for the enjoyment of those resources or values. An impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified as a goal in the park's general management plan or other relevant NPS planning documents

A determination on impairment is made in the conclusion section of each impact topic.

METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS

This section presents the methods used to conduct the environmental impact analyses. Impacts are described in terms of type (are the effects beneficial or adverse?), context (are the effects site specific, local, or regional?), duration (are the effects short or long term?), and intensity (are the effects negligible, minor, moderate, or major?). The thresholds of change for the intensity of an impact are defined as follows:

Negligible: The impact is at the lower levels of detection

Minor: The impact is slight, but detectable

Moderate: The impact is readily apparent

Major: The impact is severely adverse or exceptionally beneficial

The impact analyses for the no-action alternative compare resource conditions of the study area if the parcels are not included within the boundary expansion to existing conditions today. It is not possible to predict how the parcels would be managed if they do not become part of the national park, so best case and worst case scenarios are considered, as appropriate, in the impact analysis.

In the case of the Casey property, chances are good that it would be sold to another individual or entity if it were not sold to the National Park Service. The best case scenario is that the property would continue to be managed as a ranch (cattle ranch, guest ranch, or game ranch), and its use would remain essentially the same. The worst case scenario is that the property would eventually be resold for subdivision into ranchettes. Ranchettes would be managed by individual property owners, who would likely build homes, outbuildings, and associated gravel or dirt access roads, and install property fences. This scenario is considered equally likely to occur as the best case scenario. Ranchette development has occurred just outside the park's southern boundary, where homes are located on parcels of approximately 10 acres. Lands adjacent to national parks are popular for development into home sites because there is interest in living near scenic open spaces. In addition, Custer County does not have a zoning ordinance, and therefore, development would not be restricted in the study area.

In the case of the Pearson tract, the owner has expressed an interest in selling the property. The best case scenario is that the property would remain undeveloped over the long term. The worst case scenario, which is based on surrounding land use patterns and the characteristics of this particular site, is that the property would eventually be developed as one or more home sites. The likelihood of this occurring is considered fairly high; there are other homes in the immediate area, and the tract is on high ground and has attractive views into the national park.

In the case of the public school land, which is probably too steep to develop, the impact analysis for the no action alternative assumes that current management as livestock range would continue.

The impact analyses for the action alternatives (alternative B, the preferred alternative, and alternative C) compare conditions of the study area if included in the boundary expansion and acquired by the park with the no-action alternative. To understand the consequences of either action alternative, the reader must also consider what could happen if the parcels were not added to the national park.

All available information on impact topics was compiled from existing planning documents, research reports, surveys, and consultation with park resource specialists.

Impacts pertaining to the two 40-acre BLM tracts proposed for inclusion in the boundary expansion are addressed in the discussions related to the Casey property.

Under the 36 CFR 800, a determination of either adverse effect or no adverse effect must also be made for affected cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity of the resource location, design, setting, material, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the NRHP.

LACK OF DATA ON CHRONIC WASTING DISEASE AND THE RELEVANCE TO IMPACTS ANALYSIS

Chronic Wasting Disease (CWD) was identified on the Casey property in 1998 (see “Ungulate Exposure to Chronic Wasting Disease” in the “Affected Environment” section for a summary of the scientific evidence pertinent to this project). This issue is of concern in all identified alternatives, and therefore the lack of data on the agent causing CWD, its mode of transmission, and potential for occurrence in other species makes it difficult to assess the impacts on “Ungulate Exposure to Chronic Wasting Disease.” Further research into the cause and mode of transmission for CWD is out of the scope of this planning process; therefore such information can not be obtained.

However, the relevance of the missing information is limited, as the two action alternatives involve NPS-acquisition of the land previously identified as potentially contaminated with CWD. This would ultimately result in management of the lands to prevent the spread of CWD. Therefore, it is predominantly the impacts of alternative A (no-action) on ungulate exposure to CWD that is affected by the missing data.

IMPACTS OF ALTERNATIVE A (NO ACTION)

Impacts on Scenic Quality

If the Casey property were not sold to the National Park Service, it would probably be sold to another individual or entity. Impacts of the no-action alternative would be long term and could range from minor beneficial to minor adverse, depending on how the lands are developed and/or managed. If managed as some type of ranch (e.g., guest ranch or game ranch), the Casey property would appear similar visually to the current ranch, which would be a negligible impact. If the property were sold and subdivided into ranchettes, the landscape would likely become dotted with homes, outbuildings, fences, and gravel or dirt access roads.

Scenic impacts from development of this type would be long term, adverse, and moderate in intensity.

The owner of the Pearson tract has also expressed interest in selling his property. If the property were to remain undeveloped (the best case scenario), there would be no impact on the scenic resources of the park. In the parcel were developed into one or more home sites, adverse impacts on national park scenic resources could range from minor to moderate, depending on the extent to which the land was cleared and where buildings were placed on the property. In the worst case (development on the highest ground in full view of the park, with sheltering pines removed) the impact would be long term, adverse, and moderate; development would be an intrusion on the otherwise natural landscape, and could be seen from many areas of the park, including the main park road. If development were limited to low or sheltered areas of the property, with pines left standing, the impact would be minor.

There would be no impact to visual resources associated with not acquiring the public school lands because the site is not visible from most areas in the park and there is no expected change in the use of the land that would affect the natural landscape or viewshed.

Cumulative Impacts. Ranchette (and some industrial) development is approaching from Hot Springs toward the park. To date, this has not directly affected the natural landscape visible from the park. If trends continue, however, development would intrude into the park's viewshed compromising the largely undeveloped landscape currently visible from the park. There are several large and small sources of particulate matter and other air pollutants in the Black Hills that influence visibility from the park, especially during temperature inversions. Both of these factors adversely affect visual resources in Wind Cave National Park. The impacts are long term and minor.

Conclusion. Impacts of alternative A are contingent upon the ultimate disposal of the lands and the associated management decisions. Long-range impacts in the survey area could range from minor beneficial to moderate adverse, depending on the above factors. Cumulative impacts are long term, minor, and adverse.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Cave Resources

The only anticipated impacts to cave resources in the study area as a result of this alternative would occur on the Casey property. The impacts to the longest known cave in the Minnekahta

formation could be beneficial or adverse and negligible to moderate, depending on the ultimate disposal of the lands. If someone were to enter the cave and disturb or damage delicate cave resources (most likely to happen with ranchette development), the adverse impacts would be moderate. Adverse impacts to the cave would probably be long term or even irreversible. In the best case scenario (no development), future owners would manage the land in such a way that the known cave and any other currently undiscovered caves are protected to the maximum extent. In this case the impacts would be long term and beneficial.

Cumulative Impacts. Although the cave on the Casey property is only the second known cave in the Minnekahta formation in the Black Hills, it is the longest. The potential to lose this resource if the lands are not sold to the National Park Service could have a moderate, long-term adverse impact to the cave resources of the Minnekahta formation.

Conclusion. The impact alternative A could have on cave resources is dependent on the ultimate disposal of the Casey property. If sold to a property owner who manages the land in such a way that caves are not disturbed, the impacts could be long term and beneficial (best case scenario). If sold to an owner who is not interested in protecting cave resources (likely to occur if developed for ranchettes), the impacts would likely be adverse, long term, and negligible to moderate (if the cave is ever discovered). Cumulative adverse impacts could be moderate if the cave is discovered and subsequently disturbed.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Biological Resources

Implementing alternative A could have long-term, negligible to moderate adverse impacts on the biological resources of the study area. The impacts are dependent on the ultimate disposal of the properties. If livestock and/or commercial bison grazing continues on the Casey property and public school lands (best case scenario) under a new private owner, the environmental stewardship practices of the future landowner will determine the impacts to a large extent. If the lands become degraded because of over-grazing, or if the lands are developed for other purposes, the impacts would be long term and minor to moderate for vegetation and wildlife. If the lands are managed with the same environmental stewardship ethic of the current property owners, the effects would likely be negligible.

Black-tailed prairie dogs, a candidate for listing under the ESA, could be adversely impacted by this alternative. If the Casey property is sold to a private land owner, and that land owner chooses to eradicate the prairie dogs from the property (in order to develop the lands, or

because it is considered a pest to ranching), major, long-term adverse impacts would be expected. However, if the landowner chooses not to disturb the prairie dogs, impacts would likely be long term and beneficial for this species.

Cumulative Impacts. No past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on biological resources under alternative A.

Conclusion. Depending on the ultimate disposal of the lands within the study area, and the environmental stewardship practices of the future land owners, impacts to biological resources, including vegetation, wildlife, and threatened and endangered species are anticipated to be adverse or beneficial, long term, and negligible to major. Cumulative impacts on biological resources would not be expected under this alternative.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Ungulate Exposure to Chronic Wasting Disease

Under this alternative, the Casey property may be subdivided for ranchette development (worst case scenario), in which case it is likely that the fences currently dividing the land would come down. As the SDGF&P does not have jurisdiction on private lands potentially contaminated with CWD, the potential exists to introduce CWD into free-roaming deer and elk herds, including those supported in the park, as a result of removing the internal fences on the Casey property. This could have long-term, major adverse impacts on the deer and elk of South Dakota if CWD is introduced and successfully transmitted to wild populations. Any other future land owner that purchases the land and removes the fencing would have the same impact as described above. However, if the internal fencing that divides potentially contaminated and uncontaminated land within the Casey property remains (most likely if grazing operations are continued), the impacts would likely be minor and would help to reduce ungulate exposure to CWD for as long as the fence is maintained.

Cumulative Impacts. Ranchette development could fragment cervidae habitat, crowding elk and deer in smaller areas, which may increase the likelihood of a CWD outbreak (SDGF&P 1999, State of South Dakota 2001). However, considering that public lands border the park to the north and west, and the pace and extent of ranchette development and encroachment is limited (persons per square mile only increased from 4.0 in 1990 to 4.7 in 2000 in Custer County), it is unlikely this would occur (U.S. Department of Commerce, Census Bureau 2002). Therefore, no past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on ungulate exposure to CWD in alternative A.

Conclusion. Depending on the ultimate disposal of the lands within the study area, and the environmental stewardship practices of the future land owners, impacts on ungulate exposure to CWD could be long term, major, and adverse, or they could be short to long term, minor, and beneficial. Cumulative impacts on ungulate exposure to CWD would not be expected under this alternative. However, insufficient data on the agent that causes CWD, its mode of transmission, and the lack of information on cross-species transmission makes these impacts difficult to define.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Cultural Resources

The buffalo jump, homestead buildings, and tipi rings on the Casey property would likely remain in private hands under this alternative. The impact of this is linked to the management decisions made by future landowners. The current landowners are careful to not damage or destroy known resources. However, these resources are not actively managed and, therefore, are subject to gradual deterioration from environmental factors (weathering) and other indirect threats.

If the Casey property were not sold to the National Park Service, the impacts would be long term, and could range from negligible to major adverse, depending on management. In the best case, management as some type of ranch would continue, and the new owners would try not to disturb the cultural resources on the property. This would continue to have a negligible adverse impact from indirect threats (e.g. weathering). Since private landowners are not required to protect cultural resources, there could be long term adverse impacts. These impacts could be negligible to major, depending on the resource and land use. In the worst case, the property would be developed into ranchettes, and cultural resources would be destroyed in the process (through land clearing, road building, construction, etc.)

If the Pearson tract remained undeveloped (the best case scenario), there would be no impacts to cultural resources. If the tract were developed, there could be long-term adverse impacts to cultural resources on the property because many of the activities associated with development directly threaten cultural resources. Subsurface resources could be damaged or destroyed by road building, ground leveling and clearing, or any ground disturbing activity.

Other (unknown) archaeological and rock art sites may exist in the study area. They are not currently actively managed or documented, which means that they are subject to gradual

deterioration from natural processes and other factors, or inadvertent damage or destruction associated with current ranching operations. If the lands are not added to the park, the management of these cultural resources would not change so impacts would be negligible.

The public school lands are undeveloped. If they are not added to the park, it is unlikely that their management would change, so impacts to cultural resources would be negligible.

Cumulative Impacts. Cultural resources in the study area are subject to damage from a variety of natural events and human activities. Ranching operations, construction, grazing, other activities, and natural processes can result in gradual deterioration or outright damage to cultural resources. Reasonably foreseeable future activities, including development, could threaten cultural resources further. Cumulative impacts tend to be minor to major, adverse and long-term, depending on the resource, and scope, location, and type of activity.

Conclusion. With no change in land ownership or management, impacts to cultural resources are negligible. Unknown cultural resources likely exist in the study area. Known resources are not actively managed and, therefore, they are subject to deterioration. Cultural resources would potentially be adversely impacted if the Casey and Pearson properties were developed. The impacts would be negligible to major depending on degree of development, level of mitigation, and type of resource affected. Potential cumulative impacts tend to be minor to major, adverse and long term, depending on the resource, and scope, location, and type of activity.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Socioeconomics

Under alternative A, current beneficial effects on the economy, as a whole, would continue.

If the Casey and/or Pearson properties are sold for development there would be a potential beneficial impact on the local economy through expenditures and employment associated with construction. The impact would be minor and short term.

In addition, if these lands remain private property, the tax revenue would continue to be distributed between Custer and Fall River counties. This will have short- and long-term, negligible beneficial effects on the local economy.

Cumulative Impacts. No past, ongoing or reasonably foreseeable future actions would be expected to result in a cumulative impact on socioeconomics under alternative A.

Conclusion. For the most part, effects associated with alternative A are beneficial or unchanged from current conditions.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Park Infrastructure and Operations

Implementing the no-action alternative would have no impact on park infrastructure, but will continue to have short- and long-term, negligible to moderate adverse impacts on the operations of Wind Cave National Park. Fire management and fence maintenance would continue to be difficult in parts of the park because of the presence of the "keyhole."

Cumulative Impacts. The impact on operations would be compounded by the limited vehicle access and rough topography of the lands surrounding the "keyhole." In addition, the lack of fire management on these lands, especially the Casey property, could lead to a catastrophic wildfire. The cumulative impacts on park operations would be adverse, short and long term, and minor to moderate.

Conclusion. Adverse impacts on fire management and fence maintenance around the "keyhole" would continue to be short and long term, negligible to moderate. Cumulative impacts resulting from difficult access, rough topography, and lack of fire management in the study area would be expected to have short and long term, minor to moderate adverse impacts.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Visitor Experience and Understanding

Visitors would not be afforded any new experiences, other than those already planned under alternative A. Current opportunities for visitors would be limited to those identified within the existing park boundary. Interpretation and information about park resources would continue to be provided in a manner consistent with current and planned programs. Therefore, impacts on visitor experience and understanding are not anticipated under this alternative.

Cumulative Impacts. Local Native American tribes that have ties with the park have expressed concern over the lack of interpretation of the caves as origin sites for their people. Therefore, this alternative could mean that long-term, negligible to minor adverse impacts on visitor experience and understanding related to this story would continue.

Conclusion. Impacts on visitor experience and understanding are not anticipated if alternative A is implemented. However, long-term relationships with Native American tribes could be undermined if their story is not communicated better. Visitors are missing an opportunity to experience, and would likely not understand, the local tribal connection to the resources of Wind Cave National Park under this alternative.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

IMPACTS OF ALTERNATIVE B (PREFERRED ALTERNATIVE)

Impacts on Scenic Quality

If the park were to acquire all the lands in the study area, there would be beneficial impacts to visual resources. The viewshed to Buffalo Gap from the park would be largely protected from potential development. The natural scenery of the Pearson and Casey properties would be maintained, preserving the expansive natural landscapes that are visible from viewpoints and the main road within the park. These impacts would be minor to moderate and long term.

Cumulative Impacts. Adverse cumulative impacts would be the same as alternative A.

There would be a beneficial cumulative impact associated with park acquisition of the entire study area. TNC is working to protect scenic vistas in the region. By obtaining the entire

study area the park would further this effort. The impact would be minor to moderate and long term.

Conclusion. Under alternative B, the park would obtain all the lands in the study area. This would protect visual resources and constitute a long-term, minor to moderate beneficial impact. Cumulative impacts to the resource would continue as in alternative A, but a minor to moderate, long-term, beneficial cumulative impact would be realized by aiding TNC in the effort to protect regional viewsheds.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Cave Resources

Implementing alternative B would have long-term, moderate beneficial impacts on Cave Resources. The cave on the Casey property is the second known cave, and the longest known cave, in the Minnekahta formation. It would be preserved and protected by Wind Cave National Park under this alternative. This would afford the cave the best available protection, and provide new research opportunities for the park. Other potential undiscovered caves would likewise be protected. Preserving subsurface resources is consistent with not only the establishing legislation of Wind Cave, but also with park purpose, mission, and significance statements.

Cumulative Impacts. The cave on the Casey property is only the second, and longest, known cave in the Minnekahta formation of the Black Hills. Protecting this cave will have long-term, major beneficial impacts on cave resources of the Minnekahta formation.

Conclusion. Under this alternative, impacts to Cave Resources would be long term, moderate, and beneficial. The cave resources of the Minnekahta formation would benefit from the cumulative impacts of preserving and protecting this unique resource. These beneficial impacts would also be long term and major.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or

- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Biological Resources

Under this alternative, all of the lands in the study area would be included within the Wind Cave National Park boundary. Vegetation on the Casey property and public school lands would be allowed to return to undisturbed native community types when livestock grazing ceased. Although bison from the park would likely graze on some lands in the study area, it would be less intense than the current commercial grazing operations. This would have long-term, minor to moderate beneficial impacts on vegetation.

Acquiring the public school lands would add several birch-aspen stands to the vegetation of the park, having a short- and long-term minor beneficial effect for the diversity of vegetation and wildlife species (especially birds). The Casey property also supports extensive mountain mahogany shrublands that are not well represented in the park. Addition of this vegetation type will have short- and long-term beneficial effect on species (e.g. deer and elk) that prefer this type of browse or habitat.

Implementing this alternative would increase park rangeland by approximately 15%. This would have short- and long-term moderate to major beneficial impacts for species that Wind Cave National Park is legislated to protect, including bison, elk, pronghorn, and deer.

Prairie dog towns, mountain lion habitat, and possibly several species of rare plants would receive long-term protection from degradation under this alternative. Therefore, impacts to threatened, endangered, candidate, and/or or special concern species would be short and long term, and moderately beneficial. Acquiring these lands could also make the park eligible for reintroduction of the black-footed ferret and/or bighorn sheep. This could have further, short- and long-term, major beneficial effects on these species.

Cumulative Impacts. The cumulative effect of Wind Cave National Park, RMEF, and TNC efforts to conserve elk habitat in the Black Hills would be long-term, minor to moderate, and beneficial to the biological resources associated with this habitat.

Conclusion. Under this alternative, short- and long-term, minor to major beneficial effects are anticipated for biological resources, including vegetation, wildlife, and threatened and endangered species. The acquisition of the entire study area, combined with the efforts of the RMEF and TNC would have long-term beneficial cumulative impacts on elk habitat and its associated resources.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;

- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Ungulate Exposure to Chronic Wasting Disease

This alternative would allow the National Park Service to manage the lands on the Casey property that were potentially contaminated with CWD. This would include construction of double-fencing around the southern portion of the Casey property. The general consensus is that CWD is transmitted primarily by animal-to-animal contact, this is likely the most realistic way to prevent the spread of CWD to the wildlife that uses the park and other free-ranging deer and elk herds. All other fencing separating the park and the northern portion of the Casey property would be removed to provide expanded, contiguous habitat for other wildlife.

Currently, joint management activities for CWD recommend surveillance to determine if, and to what degree, CWD may occur on lands (SDGF&P 1999). Other management actions would be implemented as future data is obtained about CWD, through cooperative efforts with SDGF&P and other wildlife management agencies dealing with CWD in the region.

Scientific research on the disease could be carried out to study the potential for deer and elk movement onto/off of the Casey property, or identify potential long-term environmental contamination. Under this alternative, the impacts to deer and elk of the park, and the state of South Dakota, could be minor to moderate, long term, and beneficial, depending on the ultimate fate of the lands and spread of CWD if no action is taken by the National Park Service.

Cumulative Impacts. Research into CWD could further the efforts of the Colorado Division of Wildlife, the Wyoming Department of Game and Fish, the Nebraska Game and Parks Commission, and the SDGF&P, as well as the National Park Service, in eliminating or controlling the spread of CWD. This could have regional, long-term, minor to moderate beneficial impacts on wildlife.

Conclusion. Including the potentially CWD-contaminated lands within the Wind Cave National Park boundary has the greatest potential to prevent the spread of the disease to free-roaming herds, a long-term minor to major beneficial impact on deer and elk. The acquisition of the entire study area, combined with the efforts of the RMEF and TNC would have long-term beneficial cumulative impacts on elk habitat and its associated resources. NPS involvement in CWD research, coupled with the efforts of the Colorado Division of Wildlife, the Wyoming Department of Game and Fish, the Nebraska Game and Parks Commission, and SDGF&P, would have a cumulative beneficial impact on deer and elk as well.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Cultural Resources

Due to legal and NPS mandates, the Sanson buffalo jump and other known cultural resources on the Casey property would be preserved and protected as part of the national park. This would be a minor to major, long-term beneficial impact.

All other cultural resources in the study area would be afforded more protection (as per NPS and federal policy) than is currently the case. The impact would be beneficial, long term, and minor to major, depending on the nature of the sites and their current condition.

There would be potential for the discovery of more cultural resources on the properties proposed for inclusion in the Wind Cave National Park boundary expansion as federally mandated surveys are conducted. The impact would be beneficial, long term, and minor to major depending on the nature of the resources discovered.

The incorporation of the study area into Wind Cave National Park would benefit the Lakota, Arapaho, and Cheyenne tribes because, through federal mandate, ethnographic resources would be protected and accessible.

Cumulative Impacts. Cultural resources in the study area are subject to damage from a variety of natural events and human activities. Under NPS management, resources would be afforded greater protection and monitored. If cultural resources cannot be preserved, the data they possess regarding pre-contact or historic lifeways would be recorded and recovered. This would be done in consultation with the South Dakota State Historic Preservation Office. Cumulative impacts would be minor to major, beneficial and long term, depending on the resource, and scope, location, and type of activity.

Conclusion. Cultural resources would benefit by NPS acquisition of the survey area. Known cultural resources would be preserved and protected. Federally mandated surveys would be conducted and any identified cultural resources would be protected, monitored, and recorded. The impacts of these changes would be beneficial, long term, and minor to major depending on the nature of the resource. The Lakota, Arapaho, and Cheyenne would have better access to ethnographic resources as well.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;

- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Socioeconomics

The transfer of 6,555 acres of private and state land to federal ownership would affect the tax bases in Custer and Fall River Counties. Taxes paid by landowners and/or permittees in 2001 (for the 2000 tax year) on the lands proposed for inclusion in the boundary of Wind Cave National Park totaled \$10,695. This loss of revenue would be mitigated by the increased "PILT" to the counties. When the government acquires a fee interest in land, there are two payments made to the county receiving the tax payments while that land was in private ownership:

1. 1% of the fair market value of the property acquired, but not more than the previous year's real estate tax payment. This payment continues for the first five years; and
2. A second payment, called an entitlement payment, which is based on \$1.87-per acre of eligible land. This is paid from the time of transfer of title to the government, indefinitely. This figure can change from year to year as it became tied to the Consumer Price Index after September 30, 1999. This figure cannot fall below \$0.25-per acre.

This would result in a long-term, negligible adverse impact to socioeconomics, which would be more intense if all PILT were not fully funded.

It is expected that the National Park Service would need to hire two additional full-time employees to manage expanded parklands. These employees would collectively make over \$100,000, a percentage of which would be spent in the local communities. This would have a long-term, negligible to minor, beneficial impact on the local economy.

The willing sellers of the Casey property and Pearson tract would be compensated for their land according to up-to-date real estate appraisals. This would constitute a short-term major beneficial impact to the landowners and potentially an indirect short-term minor benefit to local businesses from the landowners' expenditures.

The construction of new fences, modifications of existing fences, and the removal of powerlines, the only development anticipated, would potentially benefit the local economy through NPS expenditures. The approximate cost of the fencing projects would be \$828,500. Six miles of aboveground power lines on the Casey property would be removed for a cost of \$146,000. This beneficial impact would be minor and short term.

Other socioeconomic impacts are the same as those identified in alternative A.

Cumulative Impacts. The most apparent cumulative impact associated with alternative B is that much of the land in Custer County is already owned by the federal government. Removing another 6,555 acres from the tax base could further impact municipal functions, including the struggling school systems. This would be mitigated through the Federal Lands Impact Aid and Payment in Lieu of Taxes. Even with this mitigation, long-term, negligible adverse cumulative impacts would be expected to occur.

Conclusion. Potential beneficial impacts associated with alternative B are: long term, negligible to minor related to increased NPS staff; short term and major beneficial to landowners; indirect, short term, and minor beneficial to local businesses from potential NPS expenditures; and short term, minor beneficial related to fencing and powerline projects on the new NPS properties. With mitigation, the acquisition of the study area would constitute a minor, long-term, adverse impact on the local tax base.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Park Infrastructure and Operations

Under this alternative, the park would acquire management responsibility for the two access roads on the Casey property, as well as the equipment storage shed, barn, corral, and associated bison/elk processing equipment. This would facilitate access to the park lands surrounding the "keyhole" and provide potential additional facilities for the annual bison round-up and/or emergency operations. This would have short- and long-term, negligible to moderate beneficial impacts on park infrastructure and operations.

Acquiring the Casey property would have long-term, moderate beneficial impacts on fire management operations at the park. Park fire managers would be able to use the ridge and canyon topography of the "keyhole" lands to contain and control prescribed fires. Prescribed fires allow land managers to reduce fire fuel loads, lessening the risk of catastrophic wildfires.

Under this alternative, the construction and removal of fences, and removal of power lines, will have short-term, negligible adverse impacts on park operations. These projects will require funding, staffing, and equipment, which could divert resources from other projects. Maintenance and repair of additional fences at the park will have long-term, negligible to minor adverse impacts on park operations.

However, it is very difficult to maintain the current boundary fence because it crosses steep canyons and cliffs in the "keyhole" area. Adding the Casey property to the park would permit

the boundary fence to be moved to the flatter, rolling prairie lands to the east, making fence maintenance and repairs much easier to accomplish. This would be expected to have long-term, negligible to minor beneficial impacts on park operations.

Cumulative Impacts. No past, ongoing or reasonably foreseeable future actions would be expected to result in a cumulative impact on infrastructure and operations under alternative B.

Conclusion. Park infrastructure and operations are anticipated to be impacted both adversely and beneficially. Short- and long-term, negligible to minor beneficial impacts would result from enhanced park access, additional equipment storage, new bison/elk sorting facilities, and easier access to lands for fire management and fence maintenance and repair. Short-term, negligible to minor adverse impacts to park operations would be expected to result from the cost, staffing requirements, and equipment needs associated with constructing and/or removing fences and power lines.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Visitor Experience and Understanding

Under this alternative, visitor experience and understanding at the park would be expanded. New backcountry trails, watchable wildlife programs, interpretive programs, and environmental education programs could be developed. New backcountry opportunities will increase the number of overnight camping areas as well. More trails will increase backcountry appeal, and would therefore better attract backpackers. Boundary expansion will enhance the entire existing trail system, enhancing visitor experience. New interpretive opportunities would help communicate all of the stories, from Native American to ranching, associated with Wind Cave National Park and its resources. Substantial increases in visitation are not expected as a result of boundary expansion, but rather more opportunities will be available to existing visitors. It is anticipated that long-term, minor to moderate beneficial impacts on visitor experience and understanding would result from implementing alternative B.

Cumulative Impacts. No past, ongoing or reasonably foreseeable future actions would be expected to result in a cumulative impact on visitor experience and understanding under alternative B.

Conclusion. Visitor understanding and experience would be enhanced under this alternative. New opportunities, such as expanded backcountry trails, watchable wildlife programs, interpretive programs, and environmental education programs, would likely have long-term,

moderate beneficial effects on visitor understanding and experience. This alternative would also provide an opportunity to enhance relationships with tribes through interpretation of their heritage at Wind Cave National Park.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

IMPACTS OF ALTERNATIVE C

Impacts on Scenic Quality

Under alternative C, the park would obtain only the Casey property (including the BLM "inholdings") and the impacts would be the same as under alternative B.

The Pearson tract would not be acquired, so this high ground on the park's southern boundary would not be protected from development. The impacts would be the same as in alternative A.

Impacts related to not adding the public school lands to the boundary would be the same as under alternative A.

Cumulative Impacts. Even though the Pearson property and state school lands would not be obtained, cumulative impacts would be the same as in alternative B.

Conclusion. Under this alternative, impacts associated with adding the Casey property to the park would be beneficial, long term, and minor to moderate. Impacts to the other properties in the survey area would be the same as in alternative A (Long-range impacts in the survey area could range from minor beneficial to moderate adverse, depending upon ultimate disposal and use of the land).

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Cave Resources

As in alternative B, the Casey property would be included in the park boundary. The impacts on the Cave Resources of this alternative would be the same as under alternative B.

Cumulative Impacts. The cumulative impacts on the geology and cave resources of this alternative would be the same as under alternative B.

Conclusion. All impacts, including cumulative impacts, on the geology and cave resources of this alternative are anticipated to be the same as identified under alternative B. This includes the protection of known and unknown caves, which is consistent with the establishing legislation and purpose, mission, and significance statements of Wind Cave National Park. Impacts to Cave Resources would be long term, moderate, and beneficial. The cave resources of the Minnekahta formation would benefit from the cumulative impacts of preserving and protecting this unique resource. These beneficial impacts would also be long term and major.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Biological Resources

The impacts of implementing this alternative on biological resources, including vegetation, wildlife, and threatened and endangered species, are anticipated to be the same as those for alternative B.

Cumulative Impacts. The cumulative impacts of alternative C would be the same as those identified in alternative B.

Conclusion. Although impacts on biological resources under alternative C are expected to be much the same as those under alternative B, vegetation diversity increases would be reduced because the birch-aspen stands of the public school lands would not be added to the park.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;

- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents

Impacts on Ungulate Exposure to Chronic Wasting Disease

As this alternative proposes acquiring the Casey property as well, the impacts on ungulate exposure to CWD are expected to be the same as those identified for alternative B. This alternative would also allow the National Park Service to manage the lands on the Casey property that were potentially contaminated with CWD. This would include construction of double-fencing around the southern portion of the Casey property. It is speculated that CWD is transmitted primarily by animal-to-animal contact, this is likely the most realistic way to prevent the spread of CWD to the wildlife that uses the park and other free-ranging deer and elk herds. All other fencing separating the park and the northern portion of the Casey property would be removed to provide expanded, contiguous habitat for other wildlife.

Currently, joint management activities for CWD recommend surveillance to determine if, and to what degree, CWD may occur on lands (SDGF&P 1999). Other management actions would be implemented as future data is obtained about CWD, through cooperative efforts with SDGF&P and other wildlife management agencies dealing with CWD in the region.

Scientific research on the disease could be carried out to study the potential for deer and elk movement onto/off of the Casey property, or identify potential long-term environmental contamination. Under this alternative, the impacts to deer and elk of the park, and the state of South Dakota, could be minor to moderate, long term, and beneficial, depending on the ultimate fate of the lands and spread of CWD if no action is taken by the National Park Service.

Cumulative Impacts. Research into CWD could further the efforts of the Colorado Division of Wildlife, the Wyoming Department of Game and Fish, the Nebraska Game and Parks Commission, and the SDGF&P, as well as the National Park Service, in eliminating or controlling the spread of CWD. This could have regional, long-term, minor to moderate beneficial impacts on wildlife.

Conclusion. Including the potentially CWD-contaminated lands within the Wind Cave National Park boundary has the greatest potential to prevent the spread of the disease to free-roaming herds, a long-term minor to major beneficial impact on deer and elk. The acquisition of the entire study area, combined with the efforts of the RMEF and TNC would have long-term beneficial cumulative impacts on elk habitat and its associated resources. NPS involvement in CWD research, coupled with the efforts of the Colorado Division of Wildlife, the Wyoming Department of Game and Fish, the Nebraska Game and Parks Commission, and SDGF&P, would have a cumulative beneficial impact on deer and elk as well.

Under this alternative, there would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Cultural Resources

Impacts to the Sanson buffalo jump and cultural resources on the Casey property would be the same as identified under alternative B.

Impacts to cultural resources on the Pearson tract and public school lands would be the same as in alternative A.

There would be potential for the discovery of more cultural resources on the Casey property as required surveys are conducted. The impact would be the same as alternative B.

Impacts to the ethnographic resources on the Casey Property would be the same as alternative B.

Cumulative Impacts. Cumulative impacts would be the same as alternative B, except on the Pearson tract and the public school lands where they would be the same as alternative A. Cultural resources in the study area are subject to damage from a variety of natural events and human activities and impact could be minor to major, adverse and long term, depending on the resource, and scope, location, and type of activity.

Conclusion. Impacts to cultural and ethnographic resources on the Casey property would be the same as alternative B. Impacts to cultural resources on the Pearson tract and public school lands would be the same as alternative A.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Socioeconomics

The transfer of 5,630 acres of private land to federal ownership would affect the tax bases in Custer and Fall River Counties. Taxes paid by landowners and/or permittees in 2001 (for the 2000 tax year) on the lands proposed for inclusion would be less than in alternative B (\$10,695). This loss of revenue would be mitigated by the increased “PILT” to the counties. When the government acquires a fee interest in land, there are two payments made to the county receiving the tax payments while that land was in private ownership:

1. 1% of the fair market value of the property acquired, but not more than the previous year’s real estate tax payment. This payment continues for the first five years; and
2. A second payment, called an entitlement payment, which is based on \$1.87-per acre of eligible land. This is paid from the time of transfer of title to the government, indefinitely. This figure can change from year to year as it became tied to the Consumer Price Index after September 30, 1999. This figure cannot fall below \$0.25-per acre.

This would result in a long-term, negligible adverse impact to socioeconomics, which would be more intense if all payments in lieu of taxes were not fully funded.

The owners of the Casey Ranch would be compensated for their land according to up-to-date real estate appraisals. This would constitute a short-term major beneficial impact to the landowner and potentially an indirect short-term minor benefit to local businesses from landowner expenditures.

The increase in NPS employment, fenceline and powerline projects, and their associated benefits, would be the same as alternative B. Other socioeconomic impacts are the same as alternative A.

Cumulative Impacts. Cumulative Impacts would be the same as alternative B.

Conclusion. Socioeconomic impacts under alternative C would be the same as alternative B.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park’s general management plan or other relevant NPS planning documents.

Impacts on Park Infrastructure and Operations

Impacts on infrastructure and operations under alternative C would be expected to be the same as identified for alternative B. However, fence construction, maintenance, and repair would be somewhat reduced, as this alternative does not include the public school lands and Pearson tract. This decrease would be negligible, as the Casey property requires the majority of the new fence, including some areas that might be double fenced.

Cumulative Impacts. Cumulative Impacts would be the same as in alternative B.

Conclusion. All impacts, including cumulative impacts, on infrastructure and operations under alternative C would be the same as alternative B. Park infrastructure and operations are anticipated to be impacted both adversely and beneficially. Short- and long-term, negligible to minor beneficial impacts would result from enhanced park access, additional equipment storage, new bison/elk sorting facilities, and easier access to lands for fire management and fence maintenance and repair. Short-term, negligible to minor adverse impacts to park operations would be expected to result from the cost, staffing requirements, and equipment needs associated with constructing and/or removing fences and power lines.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impacts on Visitor Experience and Understanding

The new opportunities for visitors identified under alternative B, including new backcountry trails, watchable wildlife programs, interpretive programs, and environmental education programs, would all be available on the Casey property. New backcountry opportunities will increase the number of overnight camping areas as well. More trails will increase backcountry appeal, and would therefore better attract backpackers. Boundary expansion will enhance the entire existing trail system, enhancing visitor experience. New interpretive opportunities would help communicate all of the stories, from Native American to ranching, associated with Wind Cave National Park and its resources. Substantial increases in visitation are not expected as a result of boundary expansion, but rather more opportunities will be available to existing visitors. Therefore, the impacts in alternative C would be expected to be the same as those for alternative B.

Cumulative Impacts. No past, ongoing or reasonably foreseeable future actions would be expected to result in a cumulative impact on visitor experience and understanding under alternative C.

Conclusion. Visitor understanding and experience would be enhanced under this alternative. New opportunities, such as backcountry trails, watchable wildlife programs, interpretive programs, and environmental education programs, would likely have long-term, moderate beneficial effects on visitor understanding and experience.

There would be no impairment of park resources or values because there would be no major adverse impacts to a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; and/or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

COMPARISON OF THE ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

Table 7 summarizes and compares the environmental consequences of alternatives A, B, and C.

TABLE 7. COMPARISON OF THE ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

RESOURCE AREA	ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES		
	Alternative A (No Action)	Alternative B (Preferred Alternative)	Alternative C
Scenic Quality ¹	Long-term, minor to moderate beneficial or adverse impacts	Long-term, minor to moderate beneficial impact	Long-term, minor to moderate beneficial and/or adverse impacts
Cave Resources	Long-term, negligible to moderate beneficial or adverse impacts	Long-term, major beneficial impacts	Long-term, major beneficial impacts
Biological Resources ²	Long-term, negligible to major beneficial or adverse impacts	Short- and long-term, major beneficial impacts	Short- and long-term major beneficial impacts
Cultural Resources ²	Long-term, minor to major adverse impacts	Short- and long-term minor to major beneficial impacts	Short- and long-term, minor to major beneficial and/or adverse impacts
Socioeconomics ³	Unchanged or long-term, negligible beneficial impacts	Long-term, negligible to minor beneficial and/or adverse impacts	Long-term, negligible to minor beneficial and/or adverse impacts
Park Infrastructure and Operations ⁴	Short- and long-term, negligible to moderate adverse impacts	Short- and long-term, negligible to minor beneficial and/or adverse impacts	Short- and long-term, negligible to minor beneficial and/or adverse impacts
Visitor Experience and Understanding	None anticipated	Long-term, moderate beneficial impacts	Long-term, moderate beneficial impacts

¹ Under alternative C, beneficial impacts are expected from acquiring the Casey property, however, adverse impacts could result from development of the Pearson tract.

² Cultural and biological resources impacts are ultimately dependent on the stewardship of future landowners when determining if impacts will be adverse or beneficial.

³ Under alternatives B and C, some lands will be taken out of the tax base for Custer and Fall River counties. However, the revenue loss will be mitigated with PILT. This long-term, negligible impact is the only adverse impact anticipated for socioeconomics.

⁴ Under alternatives B and C, long-term beneficial impacts are anticipated for operations such as fire management, fence maintenance, staff access, and annual bison round-ups. However, short-term adverse impacts would be expected to result from the cost, staffing requirements, and equipment needs associated with construction and removal of fencing and power lines.

EVALUATION OF FEASIBILITY AND CONCLUSIONS

BOUNDARY ADJUSTMENT CRITERIA

According to NPS Management Policies (2001), boundary adjustments may be necessary or desirable to carry out the purposes of the park unit. Boundary adjustments may be recommended if they fulfill at least one of the following three criteria:

- protect significant resources and values, or to enhance opportunities for public enjoyment related to park purposes;
- address operational and management issues, such as the need for access or the need for boundaries to correspond to logical topographic or other natural features, or to roads;
- or otherwise protect park resources that are critical to fulfilling park purposes

Recommendations to expand park boundaries must also be preceded by determinations that:

- the added lands will be feasible to administer, considering size, configuration, ownership, hazardous substance potential, costs, the views of and impacts on local communities and surrounding jurisdictions, and other factors such as the presence of exotic species; and
- other options for management and resource protection are not adequate

The first set of resource criteria is considered first; then the feasibility factors. The study area lands described in this document would clearly fulfill the first two boundary adjustment criteria if they were added to Wind Cave National Park and managed by the National Park Service.

The boundary expansion would protect prime habitat for wildlife (one of the resources for which Wind Cave National Park was established) and the scenic ridge and canyon landscape that connects to the adjacent prairie lands. It would protect a documented prehistoric buffalo jump, other special archaeological resources, and the longest known cave in the Minnekahta geologic formation. It would also expand opportunities for visitors to enjoy and experience the park, by providing additional backcountry trails and interpretive opportunities related to landscape ecology and Native American and pioneer cultural themes.

The boundary expansion would permit more effective and efficient fire management, provide better administrative access to remote areas of the national park, and allow better monitoring and maintenance of boundary fences and areas over the long term. These efficiencies would be gained by eliminating the “keyhole” of private land in the heart of the park, by using tracks or trails on the study area lands to reach remote areas, and by moving the boundary fence to flatter lands not bisected by canyons and ridges.

Thus, the study area lands described in this document meet NPS criteria for boundary adjustments and are suitable as potential additions to Wind Cave National Park. Feasibility for protection and other options for management and resource protection are discussed in the following sections.

FEASIBILITY FOR PROTECTION

Size and configuration for management and ownership

Land tracts and ownership for the potential boundary addition lands are shown in **Figure 1**. These lands are contiguous with the existing park, have reasonable means of access (current or potential future), and could be administered effectively from existing park facilities.

The park boundaries that would result from implementation of alternatives B or C would be more irregular than the existing boundary due to the shape of the new parcels. However, any disadvantages of the border irregularities would be greatly outweighed by the management benefits of adding the “keyhole” and the other lands to the park.

Options for prescribed fire management are significantly limited by the large notch of rugged, private land near the center of the park. Adding this land to the park would greatly facilitate fire management. Park fire managers would be able to use the ridge and canyon topography of the “keyhole” lands to contain and control prescribed fires. Prescribed fires allow land managers to reduce fire fuel loads, lessening the risk of catastrophic wildfires.

The existing 7-foot park boundary fence, which keeps bison in the park and helps to limit poaching and other unauthorized activities, is very difficult to maintain because it crosses steep canyons and cliffs in the “keyhole” area. Adding the Casey property to the park would permit the boundary fence to be moved to the flatter, rolling prairie lands to the east, making fence maintenance and repairs much easier to accomplish.

Acquisition costs

Real estate appraisals have not been conducted for the potential boundary expansion lands. Funds would be needed for cost appraisals, title searches, and environmental surveys.

If a boundary expansion were approved, all cost appraisals must be prepared and/or approved by the Land Resources Division of the National Park Service, Midwest Region before any funds could be allocated to purchase the lands.

The Trust for Public Lands has agreed to fund a real estate appraisal for the Casey property. The National Park Service would fund the appraisal of the Pearson tract and state school lands, with possible financial assistance from the Trust for Public Lands for appraisal of the school lands. It is noteworthy that thirty acres just south of the Pearson tract sold in 2001 for about \$1,935 per acre.

The BLM lands within the Casey property could be transferred to the National Park Service administratively, at little or no cost.

South Dakota public school lands would be acquired by donation, exchange, or with the assistance of a third party. For example, the BLM and the state could work out a land exchange that would transfer the school lands to the BLM. If successful, this would allow the lands to be transferred directly to the National Park Service from the BLM.

Access, development, and staff requirements

There are two routes of access onto the Casey Property (see **Figure 1**). The first is a short (about 30 meters in length) road that leads from Custer County Road 101 northward to the Casey property at the southeast corner of Section 17, Township 6S, Range 6E. The second is a private access road that runs due west to the Casey Ranch from Custer County Road 5 along the section line between Sections 3 and 10 (Township 6S, Range 6E). South Dakota state law protects the landowner right of access via section line roads (South Dakota Codified Law Section 31, Chapters 3-17). These two routes of access should be sufficient for NPS purposes for the foreseeable future, should the park boundary be expanded to include the Casey property.

The BLM lands are nearly surrounded by park and Casey lands and no separate access is present nor needed. There is no road access to the public school lands, which are steep and rugged and currently used for livestock grazing. The National Park Service does not currently anticipate any need for road access to these lands in the event that they are added to the park.

Access to the Pearson tract is from a local road that heads in a southwesterly direction from the main park road (see **Figure 1**). As the Pearson property is not developed, there is no “driveway” into this 40-acre property.

At this time there is no known need for development in the study area. There are several structures located on the Casey property. These include a historic homestead and outbuildings on the northern parcel, and a bison/elk sorting facility and a large concrete-floored shed/garage and a barn on the southern parcel. The homestead has potential for expanded education and interpretive programs, and the structures in the south could be used to supplement existing park bison round-up facilities. There are no structures on the Pearson, state school, or BLM lands. General guidance for management of the boundary addition lands, including use or removal of facilities, would be provided by a GMP amendment.

The Wind Cave National Park boundary fence would require modification if the identified lands are added to the park. For alternative B, the preferred alternative, about 9.75 miles of new 7-foot high boundary fence would be required around the Milliron Ranch, South Dakota school lands, and the Pearson tract. About 7.5 miles of fence could be removed after the new fence is installed, and a double fence might be required around a portion of the Casey property (Tract 02-102 on **Figure 1**) to prevent deer and elk movement onto and off of the property (see “Chronic Wasting Disease” section below). The approximate cost of the fencing projects would be \$828,500. Six miles of aboveground power lines on the Casey property

would be removed for a cost of \$146,000. Fencing costs would be slightly lower for alternative C as some fencing scheduled for construction or removal in alternative B would not be needed. Power line removal would cost the same in alternative C.

A preliminary assessment of NPS staffing needs indicates that two additional full-time equivalent staff positions would be needed to manage the addition lands in alternatives B and C: a wildlife biologist (GS-11 grade) and a park ranger (GS-4, allocated to two seasonal positions).

Trends, current plans, threats

The town of Hot Springs, South Dakota is located about ten miles south of the Wind Cave National Park. There has been a general trend toward subdivision of undeveloped and agricultural lands between Hot Springs and the park. This trend can be expected to result eventually in residential development near or even immediately adjacent to the southern and southeastern park boundaries unless preventative measures are taken. The Casey and Pearson properties are particularly suited to residential development that would greatly affect the current scenic vistas from the park due to location and topography. In a real estate prospectus the Casey property is described as having great potential for residential subdivision. The park is protected from residential development on the northern boundary by Custer State Park, and on the western boundary by Black Hills National Forest.

The Casey property has been well cared for in general. The historic and current use of the lands is for grazing cattle and a commercial bison herd. If the National Park Service were to acquire the land, livestock grazing would end and undisturbed natural vegetation would evolve over time, providing excellent habitat for wildlife. If the National Park Service does not acquire the land, and depending on the ultimate nature and extent of future land uses, special features or resources like the buffalo jump, other archaeological resources, and the only known cave in the Minnekahta Formation in the Black Hills could be damaged or destroyed.

The two 40-acre BLM allotments are currently adequately managed and are leased to the Casey's for grazing purposes. These lands are included in the boundary proposal because they are located within or adjacent to the Casey property, and are managed consistently with those lands. Without their inclusion, there would be a 40-acre "island" of BLM land within the park, and another 40-acre "peninsula" of federally managed land that could complicate the park boundary.

The owner of the Pearson tract has expressed interest in selling the 40-acre property, which includes the high ground known as Gobbler Knob. Private lands immediately adjacent to this tract, but outside the park viewshed, have been developed for private homes. Any such development on Gobbler Knob would be seen from many areas in the park, including much of the main park road. Such development would create a significant visual intrusion in the otherwise natural-appearing landscape. The natural vegetation of this tract is ponderosa pine woodland/forest and mixed grass prairie. The land appears to be in excellent condition.

The South Dakota state school land is not developable due to rugged terrain. The natural vegetation of these lands is ponderosa pine woodland/forest, mixed grass prairie, and birch-aspen stands, that have been used for livestock grazing. This land and resources, which may include prehistoric petroglyphs, are not believed to be particularly threatened by the current uses, and there is no reason to expect use to change if state ownership continues. Including the public school lands in the national park boundary would provide additional wildlife habitat and additional protection to any special natural or cultural resources that exist on the property.

Mineral, grazing, and water rights

Mineral rights on the study area lands are owned by the surface property owners. There is no known potential for minerals, including gas and oil, to be profitably extracted from these lands. If the national park were expanded to include the study area lands, the National Park Service would seek to acquire fee simple interest in all lands including any and all outstanding mineral interests as part of the land purchase. All mineral rights would be retained by the property owners if the boundary were expanded, but the lands not purchased.

Grazing occurs under permit from the BLM on the BLM lands, and under permit from the state of South Dakota on the public school lands. If the park boundary is expanded to include these lands, existing grazing permits would be allowed to continue, and could be renewed until such time as the National Park Service purchases the lands. If outstanding grazing permits are in place when the land purchase occurs, these permits would be allowed to continue until their expiration, at which point additional grazing permits would be prohibited. However, the National Park Service could purchase any outstanding grazing permits from willing sellers when the lands are acquired.

The study area includes nine existing wells that are used for domestic and stock watering purposes. Water rights for these wells will be transferred with the land and will continue to be used for the same purposes. To determine other water rights in the study area, the National Park Service will request a list of all valid water rights holders on the lands proposed for inclusion within the expanded boundary from the state engineer's office.

Hazardous waste potential and exotic species

Hazardous materials surveys have not been conducted on the study area lands. Given the historic use of the lands, however, there is no reason to believe that any of the tracts have been subjected to any industrial or commercial use that would yield hazardous materials. Limited ground observations by NPS staff have not turned up evidence of hazardous materials. Prior to acquisition, a Phase 1 Hazardous Materials Survey will be done, and, if necessary, a Phase 2 survey as well.

There was some concern over power lines on the Casey property, and the presence of PCB-containing transformers. Based on conversations with the property owner, the power lines are owned by Black Hills Electric. The utility company indicated that they have removed and

replaced any PCB-containing transformers previously on this line with PCB-free transformers (Stoll 2002).

The exotic species hound's tongue, Canada thistle, and leafy spurge are known to exist on the Casey property in small amounts. The current owners state that they hand-pull individuals of these species when they are encountered, to limit their prevalence and potential to spread. Exotic plants are not expected to be a significant issue on the public school lands because there are few exotic or invasive species in the eastern portion of the adjacent national park. The Pearson tract, which is dominated by undisturbed ponderosa pine forest that provides significant shade, is unlikely to support exotic species.

Chronic Wasting Disease

A portion of the Casey property (Tract 02-102 on **Figure 1**) was quarantined in 1998 after it was discovered that some deer and elk on the property were infected with CWD. This disease, which causes progressive loss of body condition, behavioral changes, excessive salivation, increased drinking and urination, depression and eventual death, has no known cure. Chronic wasting disease can tentatively be diagnosed by its clinical signs, but it can only be confirmed by laboratory examination of brain tissue from the affected animal. At present there is no diagnostic test available to detect the disease in live elk but there has been some success in detecting CWD in live deer using tonsillar biopsy. There is no current evidence that CWD can be transmitted to humans or to animals other than deer and elk. The South Dakota state veterinarian lifted the Casey property quarantine after the affected deer and elk were destroyed and buried on the ranch according to the veterinarian's instructions. It is not known whether the disease will remain on the land; existing fences would be maintained to keep the park's free-ranging deer and elk off the affected lands in case potential for infection remains.

The National Park Service is fully committed to taking recommended measures to prevent spread of the disease to animals in adjacent areas of the park or neighboring lands. This commitment would require a great deal of attention and study to determine the best methods to protect park and surrounding resources. Bison and other wildlife that continue to graze on the affected lands have shown no signs of the disease. Deer or elk are the only species known to be susceptible to the disease.

Federal ownership and management of the affected lands would help to reduce the likelihood that the disease does not spread to deer and elk within the park or on adjacent lands. Federal management would also provide opportunities to learn more about the disease, to the potential benefit of private and public landowners and wildlife managers. South Dakota State University may be interested in working with the park in a related research effort.

ADEQUACY OF OTHER OPTIONS FOR MANAGEMENT AND RESOURCE PROTECTION

Other than NPS administration, conceivable options for managing the lands and resources of the study area include continuing private ownership (the no-action alternative); management by a local, state, or other federal agency; or management by a nonprofit conservation organization.

Continued private ownership would not necessarily protect the resources of the study area. The current owners of the Casey property and/or Pearson tract have managed the lands so that natural and cultural resources have generally been well-cared for thus far. However, these owners have expressed interest in selling the properties, and subsequent owners might manage or develop the lands with detrimental results to natural, cultural, and scenic resources. Opportunities to expand educational and recreational programs would probably remain unfulfilled.

Managing the lands as a federal or state park or conservation area would not necessarily protect and preserve study area resources to the same extent as NPS management. Such agencies have different missions, and typically allow activities such as timber thinning and harvesting, hunting, and grazing. Furthermore, the National Park Service typically has more resources to comply with cultural resource preservation laws than do state agencies.

The U.S. Forest Service manages the Black Hills National Forest lands adjacent to the western boundary of Wind Cave National Park, but there are no Forest Service or state park lands adjacent to the study area. This means that the Forest Service or the South Dakota Department of Game, Fish, and Parks would have to manage the study area as an independent unit, which is an inefficient and unlikely scenario.

There has been no apparent interest from nonprofit conservation groups in acquiring and managing the study area lands. Although the Trust for Public Land has expressed interest in acting as a third-party to facilitate purchase of lands in the study area, they are not interested in managing those lands. Their efforts would focus on negotiating a price, purchasing the land, and subsequently selling it to the National Park Service.

NPS management appears to be the most appropriate solution because of the existing NPS presence nearby and the strong connection between Wind Cave National Park resources and study area resources.

PUBLIC INTEREST AND SUPPORT

The position of most area residents regarding the boundary expansion is not known at this time. The possible loss of revenue from removing private lands from county tax rolls (Fall River and Custer Counties) would probably be of concern to some residents. The federal government's "PILT" program could reduce or eliminate this concern. Nonetheless, Fall River

County Commissioners indicated their support for the boundary expansion in a letter dated July 20, 2001. Custer County Commissioners voted in support of the boundary expansion, as recorded in minutes of the July 10, 2001 County Commissioners' meeting. Commissioners from both counties noted their concern regarding the loss of tax dollars to the county, but expressed hope that such losses would be offset by federal PILT.

Wind Cave National Park managers met with South Dakota Congressional delegates' aids and briefly with Senator Daschle (Democrat-SD) in July 2001. They also spoke with South Dakota Congressman Thune. The delegates expressed their tentative support for expansion of the Wind Cave National Park boundaries as described in alternative B.

Custer State Park officials are supportive of the proposal, as indicated in an April 10, 2001 letter of support. The letter states that the opportunity for boundary expansion is "comparable to other historic visionary measures taken in the early formative years of the park" and would "enhance this national treasure and help ensure its preservation for the enjoyment of future generations."

The Secretary for South Dakota Department of Game, Fish, and Parks indicated his strong support for the boundary expansion in a letter dated October 2, 2001. The letter states that the boundary expansion would add to the significant public enjoyment opportunities already provided by Custer State Park and Wind Cave National Park.

Black Hills National Forest expressed support of the boundary expansion in a letter dated September 15, 2001. The additions would "eliminate access problems, provide for more efficient management, and most importantly, increase wildlife habitat."

The BLM is considering working with the State School Commission and the National Park Service regarding the boundary expansion.

The South Dakota chapter of the Sierra Club expressed support for the park boundary expansion in a letter dated September 21, 2001. This letter stated that boundary expansion would increase wildlife habitat and protection of scenic vistas, "thus increasing the park's overall ecological and scenic value."

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CONSULTATION AND COORDINATION

LIST OF AGENCIES AND ORGANIZATIONS CONTACTED FOR INFORMATION OR RECEIVING A COPY OF THE DRAFT STUDY / ENVIRONMENTAL ASSESSMENT

Federal Agencies

Bureau of Land Management
Bureau of Indian Affairs
U.S. Forest Service
U.S. Fish and Wildlife Service
U.S. Department of Agriculture – Animal and Plant Health Inspection Service
U.S. Department of Agriculture – Natural Resources Conservation Service
U.S. Department of Commerce
U.S. Environmental Protection Agency

Tribes

Oglala Sioux Tribes	Santee Sioux Tribal Council
Northern Cheyenne Tribal Council	Arapaho Business Committee
Ponca Tribe of Nebraska	Spirit Lake Tribal Council
Crow Tribal Council	Fort Belknap Community Council
Crow Creek Sioux Tribal Council	Three Affiliated Tribes Business Council
Fort Peck Tribal Executive Board	Sisseton-Wahpeton Sioux Tribal Council
Lower Brule Tribal Council	Flandreau Santee Sioux Executive Committee
Shoshone Business Committee	Standing Rock Sioux Tribal Council
Rosebud Sioux Tribal Council	Cheyenne River Sioux Tribe
Yankton Sioux Tribal & Claims Committee	Cheyenne-Arapaho Tribes of Oklahoma

U.S. House of Representatives/State

Representative John Thune
Senator Tom Daschle
Senator Tim Johnson

State and Local Agencies

South Dakota Natural Heritage Program
South Dakota Department of Game, Fish, and Parks
Custer State Park
Fall River County Commissioners
Custer County Commissioners

Other Organizations

Sierra Club Chapter of South Dakota
The Nature Conservancy
Rocky Mountain Elk Foundation

The result of any and all consultations with interested tribes regarding tribal issues, ethnographic considerations, etc. will be incorporated as appropriate prior to finalizing this Environmental Assessment.

LIST OF PREPARERS

This boundary study and EA has been prepared by engineering-environmental Management, Inc. (e²M) under the direction of Ms. Linda Stoll, Wind Cave National Park. Ms. Stoll and the Wind Cave National Park staff (especially Rod Horrocks, Dan Roddy, Barbara Muenchau, Denny Ziemann, Tom Farrell, Marie Curtain, Steve Schrempp, and Phil Heckman) have provided invaluable assistance in the development and technical review of this EA. The individuals who contributed to the preparation of this document are listed below.

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APPENDIX A

COMMUNICATION DOCUMENTING AGENCY AND TRIBAL CONSULTATION AND COORDINATION

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United States Department of the Interior

NATIONAL PARK SERVICE
Wind Cave National Park
RR 1, Box 190
Hot Springs, South Dakota 57747

IN REPLY REFER TO:

H4217(WICA)

March 1, 2002

Mr. Donald R. (Pete) Gober
U.S. Department of Interior
Fish and Wildlife Service
Ecological Services Division
420 S. Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

Dear Mr. Gober:

The National Park Service (NPS) and Wind Cave National Park (WICA) are preparing an Environmental Assessment to address the proposed boundary expansion at the park. The Environmental Assessment will be prepared in accordance with NPS Director's Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision Making*, and regulations that enforce the National Environmental Policy Act.

To help us identify environmental issues that may be affected due to this proposed project, please provide us with written comments concerning interests within your agency's jurisdiction. Specifically, we are interested in fulfilling the responsibilities of Section 7 of the Endangered Species Act to identify federally-listed endangered, threatened, candidate, and special concern species, including sensitive communities, known to occur on or in proximity to the alternative project sites, as detailed below and in the attached figure. This would also include any potential habitat used by a listed or candidate species that occurs on or in proximity to the alternative project sites. Your response within 20 days from the date of receipt of this letter will be greatly appreciated. A letter has also been sent to the South Dakota Department of Game, Fish, and Parks regarding the presence of state-listed endangered, threatened, candidate, and special concern species and their potential habitats.

There are currently three alternatives for boundary expansion at Wind Cave National Park: alternative A, the 'No Action' alternative (existing management of the park would continue and the boundary would not be expanded), and two 'action' alternatives, alternatives B and C. The two action alternatives propose expansion as follows:

- **Alternative B** - This alternative would expand the boundary of Wind Cave National Park by adding approximately 6,555 acres in six tracts representing four landowners. This includes a 5,555-acre privately owned ranch, two 40-acre Bureau of Land Management parcels, 880 acres of South Dakota public school lands, and an additional 40 acres of undeveloped private land. The parcels are located just south and southeast of the park (see enclosed map). This is the preferred alternative.
- **Alternative C** - This alternative would expand the boundary of Wind Cave National Park by adding approximately 5,635 acres in three tracts representing two landowners. This includes the 5,555-acre privately owned ranch, and the two 40-acre Bureau of Land Management parcels (see enclosed map).

APPENDIX A

If you have any questions regarding this request, please contact me at (605) 745-1129. Thank you for your assistance with this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Linda L. Stoll". The signature is written in a cursive style with a large, stylized "L" and "S".

Linda L. Stoll
Superintendent

Enclosure (as stated)

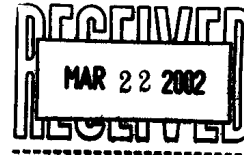


United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

March 20, 2002



MEMORANDUM:

To: Linda L. Stoll, Superintendent, National Park Service
Wind Cave National Park; Hot Springs, South Dakota

From: Donald R. (Pete) Gober, Field Supervisor, Fish and Wildlife Service
South Dakota Ecological Services Field Office; Pierre, South Dakota

Subject: Proposed Wind Cave Park Expansion

This responds to your March 1, 2002, letter notifying the Fish and Wildlife Service (Service) of your intent to prepare an Environmental Assessment and requesting information to fulfill section 7 responsibilities under the Endangered Species Act for the proposed boundary expansion at the Wind Cave National Park (Park). The Park proposes three alternatives of which there are two action alternatives that would expand the Park's boundary by 6,555 acres (Alternative B) or by 5,635 acres (Alternative C) respectively. A no action alternative (Alternative A) is also included for the National Environmental Policy Act evaluation.

ENDANGERED SPECIES LIST

In accordance with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area or in the nearby counties (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Bald eagle (<u>Haliaeetus leucocephalus</u>)	Threatened	Migration, Winter Resident, Possible Nesting.
Black-footed ferret (<u>Mustela nigripes</u>)	Endangered/ Proposed (experimental populations only)	Potential Resident in Pennington County.
Black-tailed prairie dog (<u>Cynomys ludovicianus</u>)	Candidate	Resident in Custer County.

Bald eagles occur throughout South Dakota, and new nests are appearing each year. No construction should occur within one-quarter mile of any known active bald eagle nest. The species' nesting season is January to August. Any nests found should be reported to this office.

Black-footed ferrets are exclusively dependent on prairie dog colonies for food and habitat. Any black-tailed prairie dog towns >80 acres in size or any towns that are part of a ≥1,000-acre complex of prairie dog colonies may be considered as potential black-footed ferret habitat. Black-footed ferrets have been reintroduced in Pennington and Dewey Counties. These populations have been designated as non-essential experimental populations in all or parts of Dewey, Jackson, Pennington, Shannon, and Ziebach Counties. The Service is not aware of any black-footed ferrets on the properties proposed to be included in the expansion project.

The black-tailed prairie dog is a candidate species and is not provided Federal protection under the Endangered Species Act but, for purposes of section 7 consultation, the National Park Service treats a candidate species as if it were proposed for listing. Their candidate status defines these animals as a species in decline that the Service believes warrants listing as threatened or endangered, but listing is currently precluded by other priorities. There are some limited prairie dog colonies on the properties proposed for the expansion project. Additionally, much of the property appears to have suitable habitat for prairie dogs and associated species.

If the National Park Service determines that the proposed expansion "may adversely affect" listed species in South Dakota, it should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary. However, a copy of the determination should be sent to this office.

The Service is not aware of any adverse effects that may result to listed or candidate species from the proposed expansion of the Park boundaries. However, there does appear to be significant potential to benefit listed and candidate species by this action since incorporation of the described properties could add substantial habitat for various prairie species that have declined dramatically from historical levels. These include black-footed ferrets and black-tailed prairie dogs to name a few.

Section 7(a)(1) of the Endangered Species Act states that:

"All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act."

The Service is responsible for making recommendations to other Federal agencies to assist those agencies in achieving resource benefits to listed species under this section 7(a)(1) requisite. The action alternatives (B and C) for this specific boundary expansion proposal include two 40-acre parcels of Bureau of Land Management (BLM) properties. Alternative B also entails transfer of 880 acres of adjacent South Dakota School lands to the Department of the Interior to be managed by the Park. This could be facilitated by trading BLM properties elsewhere in South Dakota to the Office of School and Public Lands for those 880 acres of South Dakota School lands bordering the Park. These 880 acres would then be included in the Park boundary expansion.

The Service believes it is important for the two 40-acre BLM parcels to be included in the boundary expansion and managed by the Park. The Service also recommends that a land trade be effectuated so the 880 acres of South Dakota School lands are traded to the Department of the Interior for BLM lands elsewhere in South Dakota. It is recognized that portions of the 880 acre parcel of South Dakota School lands are not suitable prairie dog habitat, but acquisition would maximize management flexibility and therefore still provide benefits to listed and candidate species. By these actions, the Service believes that the BLM and the Park are taking important

steps to further the conservation of black-tailed prairie dogs and ultimately black-footed ferrets that might be reintroduced. The Service believes that Alternative B would maximize resource benefits and recognize that BLM can play a key role in achieving these benefits. Alternative B complies with the spirit and intent of section 7(a)(1), and the involved agencies are to be commended for cooperating on this proposal.

The Service appreciates the opportunity to provide comments on this proposal. If you have any questions on these comments, please contact Scott Larson of this office or me at (605) 224-8693, Extensions 27 or Extension 24 respectively.

cc: BLM State Office; Belle Fourche, SD
(Attention: Pat Gubbins)
Office of School and Public Lands; Pierre, SD
(Attention: Curt Johnson)

A handwritten signature in dark ink, appearing to be 'DGG' followed by a long horizontal stroke.



IN REPLY REFER TO: --

United States Department of the Interior

NATIONAL PARK SERVICE
Wind Cave National Park
RR 1, Box 190
Hot Springs, South Dakota 57747

H4217(WICA)

March 1, 2002

Mr. John Cooper
South Dakota Department of Game, Fish, and Parks
523 East Capitol Avenue
Pierre, South Dakota 57501-3182

Dear Mr. Cooper:

The National Park Service (NPS) and Wind Cave National Park (WICA) are preparing an Environmental Assessment to address the proposed boundary expansion at the park. The Environmental Assessment will be prepared in accordance with NPS Director's Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision Making*, and regulations that enforce the National Environmental Policy Act.

To help us identify environmental issues that may be affected due to this proposed project, please provide us with written comments concerning interests within your agency's jurisdiction. Specifically, we are interested in state-listed endangered, threatened, candidate, and special concern species, including sensitive communities, known to occur on or in proximity to the alternative project sites, as detailed below and in the attached figure. This would also include any potential habitat used by a listed or candidate species that occurs on or in proximity to the alternative project sites. Your response within 20 days from the date of receipt of this letter will be greatly appreciated. A letter has also been sent to Mr. Donald R. (Pete) Gober of the Ecological Services Division of the Pierre Office of the U. S. Fish and Wildlife Service regarding the presence of federally-listed endangered, threatened, candidate, and special concern species and their potential habitats.

There are currently three alternatives for boundary expansion at Wind Cave National Park: alternative A, the 'No Action' alternative (existing management of the park would continue and the boundary would not be expanded), and two 'action' alternatives, alternatives B and C. The two action alternatives propose expansion as follows:

- **Alternative B** - This alternative would expand the boundary of Wind Cave National Park by adding approximately 6,555 acres in six tracts representing four landowners. This includes a 5,555-acre privately owned ranch, two 40-acre Bureau of Land Management parcels, 880 acres of South Dakota public school lands, and an additional 40 acres of undeveloped private land. The parcels are located just south and southeast of the park (see enclosed map). This is the preferred alternative of the NPS.
- **Alternative C** - This alternative would expand the boundary of Wind Cave National Park by adding approximately 5,635 acres in three tracts representing two landowners. This includes the 5,555-acre privately owned ranch, and the two 40-acre Bureau of Land Management parcels (see enclosed map).

If you have any questions regarding this request, please contact me at (605) 745-1129. Thank you for your assistance with this project.

Sincerely,

A handwritten signature in cursive script that reads "Linda L. Stoll". The signature is written in black ink and is positioned above the printed name and title.

Linda L. Stoll
Superintendent

Enclosure (as stated)



DEPARTMENT OF GAME, FISH AND PARKS

Foss Building
523 East Capitol
Pierre, South Dakota 57501-3182

March 26, 2002

Linda Stoll, Superintendent
Wind Cave National Park
RR 1, Box 190
Hot Springs, South Dakota 57747

Dear Linda:

This acknowledges receipt of and responds to your letter of March 1, 2002 relative to your proposed boundary expansion. In your letter you asked us for comments concerning interests and concerns within our agency's jurisdiction. As a result of our review we have several comments to make relating to the proposed project.

We do not have any records of rare, threatened and endangered species in the areas proposed for acquisition by your agency. The Black-tailed prairie dog is a federal candidate species but is not tracked by the South Dakota Natural Heritage Database. Black-tailed prairie dog colonies are common in Wind Cave National Park. Currently the State of South Dakota is working on a Prairie Dog Management Plan that is part of a multi-state effort to avoid the need to list this species.

Our concerns with the expansion project fall into two categories. These are public hunting access and wildlife management. The private property you are looking to acquire has in the past offered limited hunter access. Limited as access has been, it still provided some opportunity that resulted in the harvest of game animals including elk. Likewise, the Bureau of Land Management property has provided some hunter access even though it was landlocked by the Casey ranch. The School and Public Lands property has provided unlimited public access by foot when permission was obtained to cross the neighbor's private land. Many elk have been harvested from this land under these access conditions.


We are uncertain as to the intentions of your agency on how these lands would be managed. We know that allegations have been made by landowners that the Park is harboring an ever growing and ever more depredating herd of elk. If these lands were acquired, we would encourage you to manage these lands not in the traditional or historic Park Service sense but to provide public hunting access to alleviate depredation and assist with elk management in the area. Such hunting opportunities could be limited to walk-in only and still achieve elk management goals and objectives.

An additional concern of ours is how the National Park Service intends to manage the Casey property. Currently a high fence is maintained on the property. We would suggest this fence be retained and maintained. While no cervids currently exist within the enclosure, it should be maintained to keep cervids out. We have no idea how long Chronic Wasting Disease may remain infectious within the enclosure. Until we know more about this disease it would be prudent to take every precaution to prevent further infection.

Provided the National Park Service allows public hunting access to these areas, the Department can support either alternative B or C. If there is no provision for public hunting access, the Department would support alternative C as this would leave the School and Public Lands property out of the proposal.

We would be more than happy to meet and discuss these issues with you. At the same time, we thank you for the opportunity to comment.

Sincerely,



John L. Cooper
Department Secretary



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Wind Cave National Park
RR 1, Box 190
Hot Springs, South Dakota 57747

H4217(WICA)

March 4, 2002

Ms. Janet Oertly
U.S. Department of Agriculture
Natural Resources Conservation Service
200 4th Street, SW
Huron, South Dakota 57350

Dear Ms. Oertly:

The National Park Service (NPS) and Wind Cave National Park (WICA) are preparing an Environmental Assessment to address the proposed boundary expansion at the park. The Environmental Assessment will be prepared in accordance with NPS Director's Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision Making*, and regulations that implement the National Environmental Policy Act.

To help us identify environmental issues that may be affected due to this proposed project, please provide us with written comments concerning interests within your agency's jurisdiction. Specifically, we are interested in any issues relating to the Farmland Protection Policy Act, the Grazing Land Protection Act, and any other acts under your jurisdiction that might apply to the proposed addition of these lands to the National Park Service and Wind Cave National Park as detailed below and in the attached figure. Your response within 20 days from the date of receipt of this letter will be greatly appreciated.

There are currently three alternatives for boundary expansion at Wind Cave National Park: alternative A, the 'No Action' alternative (existing management of the park would continue and the boundary would not be expanded), and two 'action' alternatives, alternatives B and C. The two action alternatives propose expansion as follows:

- **Alternative B** - This alternative would expand the boundary of Wind Cave National Park by adding approximately 6,555 acres in six tracts representing four landowners. This includes a 5,555-acre privately owned ranch, two 40-acre Bureau of Land Management parcels, 880 acres of South Dakota public school lands, and an additional 40 acres of undeveloped private land. The parcels are located just south and southeast of the park (see enclosed map). This is the preferred alternative.
- **Alternative C** - This alternative would expand the boundary of Wind Cave National Park by adding approximately 5,635 acres in three tracts representing two landowners. This includes the 5,555-acre privately owned ranch, and the two 40-acre Bureau of Land Management parcels (see enclosed map).

If you have any questions regarding this request, please contact me at (605) 745-1129. Thank you for your assistance with this project.

Sincerely,

Linda L. Stoll
Superintendent

Enclosure (as stated)

United States Department of Agriculture



Natural Resources Conservation Service
Federal Building, 200 Fourth St. SW
Huron, South Dakota 57350

Phone: (605) 352-1200
Fax: (605) 352-1261

March 11, 2002

Ms. Linda L. Stoll, Superintendent
National Park Service
Wind Cave National Park
RR 1, Box 190
Hot Springs, South Dakota 57747

RE: Environmental Review - Park Proposed Boundary Expansion

Dear Ms. Stoll:

We have reviewed the site map of the land involved for the proposed expansion of Wind Cave National Park.

The site does contain potential farmland of statewide importance. Attached is Form AD-1006, Farmland Conversion Impact Rating. Assessed is your preferred alternative B. The total point value in Part VII of the form is less than 160 points. Therefore, there is no significant impact to prime or important farmland. No other alternatives need be considered.

If you have any questions regarding this finding, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, reading "Janet L. Oertly".

JANET L. OERTLY
State Conservationist

cc: Ronald Siers, DC, NRCS, Hot Springs

Enclosure

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 3/4/02	
Name Of Project Wind Cave NP Boundary Expansion		Federal Agency Involved National Park Service	
Proposed Land Use National Park		County And State Custer, South Dakota	
PART II (To be completed by NRCS)		Date Request Received By NRCS 3/6/02	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Acres Irrigated -- Average Farm Size 1462 acres
Major Crop(s) Wheat	Farmable Land In Govt. Jurisdiction Acres: 182622 % 18	Amount Of Farmland As Defined in FPPA Acres: 145750 % 14	
Name Of Land Evaluation System Used South Dakota Department of Revenue	Name Of Local Site Assessment System None	Date Land Evaluation Returned By NRCS 3/11/02	
PART III (To be completed by Federal Agency)		Alternative Site Rating	
		Site A	Site B Site C Site D
A. Total Acres To Be Converted Directly	6,555.0		
B. Total Acres To Be Converted Indirectly	0.0		
C. Total Acres In Site	6,555.0	0.0	0.0 0.0
PART IV (To be completed by NRCS) Land Evaluation Information			
A. Total Acres Prime And Unique Farmland	0.0		
B. Total Acres Statewide And Local Important Farmland	139.0		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.1		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	99.0		
PART V (To be completed by NRCS) Land Evaluation Criterion			
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		1	0 0 0
PART VI (To be completed by Federal Agency)			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points		
1. Area In Nonurban Use	15	15	
2. Perimeter In Nonurban Use	10	10	
3. Percent Of Site Being Farmed	20	0	
4. Protection Provided By State And Local Government	20	0	
5. Distance From Urban Builtup Area	15	15	
6. Distance To Urban Support Services	15	10	
7. Size Of Present Farm Unit Compared To Average	10	10	
8. Creation Of Nonfarmable Farmland	10	0	
9. Availability Of Farm Support Services	5	1	
10. On-Farm Investments	20	5	
11. Effects Of Conversion On Farm Support Services	10	0	
12. Compatibility With Existing Agricultural Use	10	0	
TOTAL SITE ASSESSMENT POINTS	160	66	0 0 0
PART VII (To be completed by Federal Agency)			
Relative Value Of Farmland (From Part V)	100	1	0 0 0
Total Site Assessment (From Part VI above or a local site assessment)	160	66	0 0 0
TOTAL POINTS (Total of above 2 lines)	260	67	0 0 0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Reason For Selection:			

(See Instructions on reverse side)

This form was electronically produced by National Production Services Staff

Form AD-1006 (10-83)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step 4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

Total points assigned Site A = $180 \times 160 = 144$ points for Site "A."

Maximum points possible 200



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Wind Cave National Park
RR 1, Box 190
Hot Springs, South Dakota 57747

H4217(WICA)

March 1, 2002

Mr. Jay Vogt
State Historic Preservation Officer
State Historical Preservation Center
South Dakota State Historical Society
900 Governors Drive
Pierre, South Dakota 57501-2217

Dear Mr. Vogt:

The National Park Service (NPS) and Wind Cave National Park (WICA) are preparing an Environmental Assessment to address the proposed boundary expansion at the park. We have enclosed the Task Order for the project along with the policy review draft for your information and review. We expect to have the public review plan towards the end of this month, which will be forwarded to you for your 30-day review.

If you have any questions regarding this project, please contact me at (605) 745-1129. Thank you for your assistance.

Sincerely,

Linda L. Stoll
Superintendent

Enclosures (as stated)

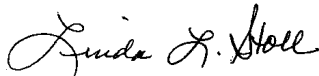
The addition of the lands in this proposal creates a park boundary that protects and enhances existing resources, as well as establishes a boundary that is easier to protect and manage. Adding these lands is a natural continuation of the present landscape, the boundary will be more easily managed, long term natural wildlife migration routes will be better protected, and more consistent management of lands that now can directly affect current park resources will be realized.

The park is aware that American Indians value Wind Cave National Park as a very special place, so we want to be sure that the project will not affect it or other ethnographic resources valued by your tribe. Therefore, this letter is to formally initiate Government-to-Government consultation with your office in accordance with legislation, Executive Orders, regulations, and policy, including sections 101 and 106 of the National Historic Preservation Act of 1966 as amended, 36 CFR 800, National Park Service *Management Policies* and Director's Order 28, *Cultural Resources Management* (especially Chapter 10, Ethnographic Resources). A similar letter has been sent under separate cover to your tribal chairperson to inform them of the project, and to request a response should there be any concerns about ethnographic resources.

We have begun planning work required by Section 106 of the National Historic Preservation Act, and we have begun work on a boundary expansion environmental assessment that will study and assess the resource significance, current and potential use for the area, system or feasibility for NPS management, and general options for further study and protection. We believe that your participation will result in better management decisions by the National Park Service, and will help ensure that cultural resources valued by your tribe are adequately considered in preparation of the forthcoming environmental assessment. The draft environmental assessment will be ready for your review around March 26, 2002. We look forward to receiving your input on our plans prior to the release of the draft environmental assessment so that we may adequately address your concerns about the project. We would be pleased to discuss this project further either by telephone or in a meeting.

If you have any questions, please contact me or Tom Farrell, our Section 106 Compliance Coordinator. We can both be reached at (605) 745-4600.

Sincerely,



Linda L. Stoll
Superintendent

Enclosure

cc: NPS-MWR-Craig Kenkel, Sandra Washington
e2M consultant

[NOTE: This letter was forwarded to all tribes noted in the "Consultation and Coordination" section. Individual notifications will not be reproduced here, however individual responses, if and when received, will be reproduced.]